



The Resonator

Official Newsletter of The Fair Lawn (NJ) Amateur Radio Club

Volume 4, Number 11

www.FairLawnARC.org

November 2019

From The President:

To FLARC members:

I am happy to announce the W2NPT repeater antenna has been replaced and back in action. Thank you to all that helped with the replacement.

The club now owns a nice set of climbing gear so in the future we will have proper climbing gear to maintain our towers.

I would like to thank Brian KD2KLN for locating new (to us) projector that should enable the club to have larger, brighter and clearer presentations at the senior center. He was lucky enough to even get us a spare (for parts) !

Just two months left to the year and it will be 2020. We have plenty of activities through the rest of the year so even though it is a busy time for everyone please keep your eye on the calendar for all the upcoming FLARC events. Please make sure to get in touch with Gene WO2W in order to help with the November auction and December dinner party. We want both of these to be a success so please help out and participate.

Brad - KM2C
FLARC President

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Member Profile

NAME: **Bob Casey** CALL: **WA2ISE**

What do you do/what did you do for a living?

I'm involved in electrical engineering, more specifically analog and digital video circuits and systems (system as in the block diagram inside a video IC). Currently I've invented 13 patents (I do not receive royalties, but I do get bragging rights).

How did you first get interested in ham radio?

I have been into electronics since high school. I got around to getting a Technician license (later known as Tech Plus: 5WPM code and the General written) during the Summer of 1976 when I was in college (Syracuse University, BSEE 1978).

I upgraded to Extra in 2000, when the FCC decided 5WPM was good enough for Extra, so took the Advanced and Extra written exams, and got my Extra.

What parts of the hobby most interest you?

HF (mostly FT8 lately, and SSB) and AREDN. Analog radio circuits. I'm also into old radios.

What does belonging to FLARC mean to you? How do you/can you better contribute to the club?

It's a fair question. I'm a new member, and it's hard to say. I will figure this out later on, so ask me again sometime in the future.

Continued on page 5.

The Club Fair Lawn ARC is the fastest growing ham club around, with five operating positions in a permanent clubhouse. Visitors and guests are always welcome. The club is open every Friday night from NLT 6:30 PM. Business meetings are the first Friday of the month at 7:30PM.

Fair Lawn RACES/ARES Corner



2019 Officers, Committees and Assignments

President	Brad Kerber	KM2C
Vice President	Lowell Van't Slot	W2DLT
Treasurer	Al Rasmussen	WA2OWL
Secretary	Randy Smith	WU2S
Trustee	Skip Barker	KD2BRV
Trustee	Don Cassarini	N2PRT
Field Day	Steve Wraga	WA2BYX
Member Services	Judith Shaw	KC2LTM
Publicity	Ed Efchak	WX2R
Publicity	Gene Ottenheimer	WO2W
Publicity	Susan Frank	W6SKT
Program	Lowell Vant Slot	W2DLT
Publicity	Karl Frank	W2KBF
Publicity	Brad Kerber (ex officio)	KM2C
Social Media	Dave Marotti	NK2Q
Video/YouTube	Thom Guida	W2NZ
VE Liaison	Gene Ottenheimer	WO2W
VE Liaison	Pete Senesi	KD2BMX
Education	Gordon Beattie	W2TTT
Education	Randy Smith	WU2S
Education	John L. Howard	K2JLH
Education	Fred Wawra	W2ABE
History	Fred Belghaus	W2AAB
Health and Welfare	Judith Shaw	KC2LTM
Photographer	Don Cassarini	N2PRT
W2NPT Trustee	Paul Cornett	W2IP
Technical	Paul Cornett	W2IP
Technical	Randy Smith	WU2S
Technical	Fred Wawra	W2ABE
RACES Director	Dave Gotlib	KD2MOB
RACES Liaison	Steve Wraga	WA2BYX
Newsletter Editor	Ed Efchak	WX2R
FL Town Liaison	Gene Ottenheimer	WO2W
Net Scheduler	Brian Cirulnick	KD2KLN
Quartermaster	Brian Cirulnick	KD2KLN

Before I begin this column in detail, I would like to wish everyone a Happy Thanksgiving. The FL-ARES members are preparing for emergency communications when necessary. Of course, this takes training and experience from our membership which currently numbers more than a dozen. We are fortunate to make Fair Lawn and the surrounding communities our home. With our leadership and support from the FLARC we can grow and be of assistance in many community events.

Our weekly KB2FLA nets have become more than just communication nets. One Wednesday per month (usually the 3rd Wednesday) Randy WU2S hosts a video net demonstration which covers various types of communication operations. Randy WU2S is an educator and has a wealth of knowledge we can all learn from.

On October 5th FL-ARES had a display at the BARA Hamfest, held in Westwood, NJ. A handful of hams passed by the display with interest in getting involved in emergency communication. The display served as community outreach, letting the public know that we are around. I would like to thank Karl W2KBF for setting up the display and informing the community about FL-ARES.

ARES through the ARRL is undergoing a 21st century makeover - the timing can't be any better. Please see the ARRL-ARES article linked below.

New ARES plan aligns ARES with the needs of Served Agencies:

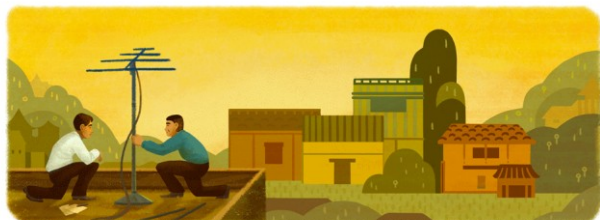
<http://www.arrl.org/news/new-plan-aligns-ares-with-the-needs-of-served-agencies>.

Continued on page 35.

MASTER EVENT CALENDAR

November 15, 2019	George Sabbi KB2GJG "SKYWARN For Today"
November 29, 2019	FLARC AUCTION - Fair Lawn Senior Center
December 6, 2019	FLARC Annual Meeting and Holiday Party - Fair Lawn Senior Center
December 13, 2019	Ria Jairam N2RJ "An Update On The ARRL Hudson Division" **
January 17, 2020	Florencia Pierri KD2PHZ "The First Mass Audience Radio Broadcast"
January 25-26, 2020	Winter Field Day (TBD)
February 21, 2020	Ed Efchak WX2R "The 2020 FLARC Member Survey" - at the club.
March 20, 2020	Howard Michel WB2ITX ARRL CEO "The ARRL Today" - Senior Center
April 17, 2020	Rich Moseson W2VU "75 Years of CQ Magazine" - Senior Center

** 2nd Friday of month



Hidetsugu Yagi's 130th Birthday Google Doodle

Follow FLARC ON THE WEB

Facebook: <http://facebook.FairLawnARC.org>

Twitter: @FairLawnARC

Blog: <http://blog.FairLawnARC.org>

Youtube: <http://youtube.FairLawnARC.org>

Website: <http://FairLawnARC.org>

FLARC VEC Exams

Our next test sessions are scheduled for **Saturday, October 26th** beginning at 09:00 at the Community Center. No advanced registration is required but always appreciated. The fee is \$15.00 (cash or check).

Please bring positive identification (license, passport, etc.), your original license and a copy, original CSCE and a copy (if credit is needed).

The full exam schedule is on the club calendar at the FairLawnARC.org website. For further information contact VE-Liason@FairLawnARC.org.

Please refer also to the "License Exams" link on the main website--

<http://testing.FairLawnARC.org>

We appreciate your support of the Fair Lawn Amateur Radio Club!

This is your Club! Be part of it!

— When the phones are down, the hams are UP ! —

Faces In The Crowd

An eagle eye caught a member of FLARC in New York City during the early part of this month. Ron KC2TBD was spotted by a local media photographer during a rally in support of keeping WBAI radio on the air.

We would like to think that Ron was also soliciting for the club to get some new hams on the FLARC roster.



Ron KC2TBD hopefully working the crowd in support of FLARC!

FLARC Holiday Party Is Coming!

-- Gene WO2W

We have recently gotten a lot of new members and many of them do not know the details of the auction and holiday party - so I thought I would fill everyone in.

Ever since I joined the club in 1962 we have had a Holiday party for members and family. Back then it was simply cold cut platters and some salads.

Around 1995 we had about 46 members and less than one thousand dollars in our treasury. Syd, N2ZSE and I said we need to raise some money to help pay for the holiday party and that is where the idea for the auction came from.

We are no longer in the same financial situation as back then, however traditions still carry on.

Our auction is the **ONLY** fund raiser we do all year, so besides dues this is the only money the club gets.

Continued On Page 8.

Please Note: Operating at W2NPT

Starting in January 2019 club trustees have sign-in sheets for all operating positions. There is a clipboard at Operating Position #1, #2 (digital) and #4 with a form on which to sign up for half-hour time slots. No longer first come-first served, in fairness to all who want to use our club equipment and the new antennas. More details to follow.

Get Direct With FLARC!

Here is a direct link to specific club info: just a click away!

<http://apparel.FairLawnARC.org>
<http://auction.FairLawnARC.org>
<http://blog.FairLawnARC.org>
<http://calendar.FairLawnARC.org>
<http://events.FairLawnARC.org>
<http://exams.FairLawnARC.org>
<http://facebook.FairLawnARC.org>
<http://testing.FairLawnARC.org>
<http://news.FairLawnARC.org>
<http://swap.FairLawnARC.org>
<http://tech.FairLawnARC.org>
<http://youtube.FairLawnARC.org>

NEW !

<https://groups.io/g/FairLawnARC>



October 2019 Blog Traffic

Ups and downs month over month again for October. A mixed year as posts were down as well this month.

	October 2019	October 2018	Change
Views	474	649	-27%
Visitors	287	392	-27%
Posts	9	8	+13%

There is new content nearly every day so it's really worth the look to both FairLawnARC.org and the blog.

<http://blog.FairLawnARC.org>

Member Profile, continued.

What should be the club's priorities in the next year?

Again, I'll take a pass until a little more time goes by. I'm too new and just starting to get to know everyone.

What other clubs or organizations do you belong?

BARA and ARRL



Bob W2ISE

Interested in Chasing DX?

A casual group of FLARCers including Van W2DLT, John KD2NRS, Brad KM2C, Karl W2KBF, Nomar NP4H, Steve W12W, Jim W2JC, Larry WA2ALY and Fred W2AAB have formed an email group to keep each other in touch in (real) time of when the rare or interesting ones show up to chase. Interested? See or contact Van W2DLT.

Here is a very useful list of upcoming DXpeditions --
<https://www.ng3k.com/Misc/adxo.html>



November 6 - 19, 2019

Club Apparel -- Get Them While They're **RED**!

Club apparel is always in vogue. Red is always "in" and your club friends all have them... you *want* a shirt or jacket for the next FLARC event!

Don't forget.... they're easy to order.
Go to www.hamthreads.com
or visit <http://apparel.FairLawnARC.org>

Check out the item selection that is posted on the FLARC website (with pictures and prices). Order the shirts or other items you want with either the regular FLARC logo or the still-cool 60th anniversary logo. Note: **RED** is the primary and preferred club standard shirt color.



Steve W2BYX shows off his FLARC colors at a recent meeting

2019 FLARC Speaker Series Locations:

SPEAKERS WHO ARE FLARC MEMBERS:
FLARC CLUBHOUSE

SPEAKERS WHO ARE INVITED GUESTS:
FAIR LAWN SENIOR CENTER



**For The FLARC Auction
November 29th
VOLUNTEER!!**

BEQUEATHS AND DONATIONS

Planned gifts usually imply the family donation of amateur equipment to the club when someone has become a Silent Key. But it can be more. Club members might consider making a gift through a will or trust; gifts that help provide lifetime income to the club. Consult with your lawyer, estate planner or tax advisor if you feel such as gift is worthy.

About The Club

The Resonator is published monthly and is the official (and only) newsletter of The Fair Lawn Amateur Radio Club. FLARC was established in 1956 and has met continuously since inception. **The club is sponsored by the Borough of Fair Lawn.** The club meets every Friday at 6PM at the club station in The Fair Lawn Community Center, 10-10 20th Street, Fair Lawn, NJ. Business meetings are the first Friday of the month at 7:30 PM.

Visitors **ARE ALWAYS** welcome at our meetings.

FLARC operates the W2NPT repeater (145.470- PL 167.9) located high atop the Community Center. The analog repeater is open to all amateurs for use without restrictions.

The club has over one hundred paid members. Dues are currently \$25 per year/\$20 for new members.

For more information, please see our website, at <http://membership.FairLawnARC.org>

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FLARC VE Honor Roll

As of the end of September, here is the honor roll of FLARC members and their VE contribution to monitoring test sessions. Thanks to all for your effort!!

K2JK	Joe	139
KD2BMX	Pete	98
KC2ORX	Rob	46
WX2R	Ed	46
W2NZ	Thom	43
WO2W	Gene	41
W2TU	Chris	39
K2TRW	Kai	32
K2RRB	Roger	28
K2SAB	Steve	24
KD2DRS	Lee	21
NN2H	John	16
W2IP	Paul	15
W2DG	Peggy	11
N2RJ	Ria	11
WX2UA	Joe	7
K3KKH	Stan	3

**THE GREAT FLARC AUCTION
IS
FRIDAY, NOVEMBER 29TH!!**

BE THERE!!



**FAIR LAWN'S
COMMUNICATIONS CENTER!
*With New Antennas On The Roof!***



2019 Near and Far Net Check-In's

Now in its third year, the FLARC *Near and Far* net is chugging along each week. Here is list of our check-ins beginning on New Year's Night in no particular order. Mondays at 8PM on the repeater.

Name	Call
Dave	N2AAM
Gene	WO2W
Van	W2DLT
Karl	W2KBF
Stan	KC2K
Ed	WX2R
Steve	WA2BYX
Brian	KD2KLN
Ken	W2KAC
John	K2BIX
Fred	W2AAB
Bob	KD2BKD
Randy	WU2S
Dave	KD2JIP
Larry	KD2QFI
Steve	WI2W
Brad	KM2C
Thom	WN2Z
Ron	KC2TBD
Dave	KD2MOB
Bob	KM4CPU
Bob	KE0OPX
Phil	KA2SEY
Dave	NK2Q
Noel	N2OEL
Ray	KD2RBW
Larry	KD2QFI
Matt	K2FTP
Paul	K2PJC
Tom	WB2KWD
Brian	KD2OAZ
Bob	N2HIP
Al	KC2SAV
Chris	W2TU
Anton	K2PLB
Ray	KD2RIK
Watson	K3WAT
Kevin	KD2RJM
Roger	K2RRB
Jonathan	KC2RRK
Glenn	KB2MDR

2019 Member Profiles

With Volume 4, we begin an new list of featured members in a monthly profile. See past profiles elsewhere in *The Resonator* to check back in the archives to see each featured member's background.

Month	Name	Call Sign
January 2019	Dave	KD2JIP
February	Jim	K2ZO
March	Zach	KC2RSS
April	Bob	N2SU
May	Stan	KC2K
June	Steve	WA2BYX
July	Roger	K2RRB
August	Judith	KC2LTM
September	Chris	W2TU

2019 Near and Far Net Check-Ins (Continued)

Name	Call
Andrew	KC2G
Kenneth	KC2OKR
Kenny	W2KAC
Fred	W2ABE
Judith	KC2LTM
Tyrell	KB2TJK
Glenn	KB2MDR
Dave	N2DEA
Skip	KD2BRV
Dave	WA2SVM
George	W3EH

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Past FLARC Member Profiles

Here is a list of past member features and we welcome your recommendations for new profiles -- including your own.

Month	Name	Call Sign
January 2016	Pete	KB2BMX
February	Marco	KC2ZMA
March	Ron	KC2TBD
April	Kai	K2TRW
May	Larry	WA2ALY
June	Dave	N8MAR
July	Steve	WI2W
August	Thom	W2NZ
September	Brian	KD2KLN
October	Brad	KM2C
November	Al	WA2OWL
December	George	W3EH
January 2017	Fred	W2ABE
February	Dave	KD2MOB
March	Randy	WU2S
April	Lee	KD2DRS
May	Gene	WO2W
June	Carol	KD2NMV
July	Kevin	KC2KCC
August	Robert	KD2NOG
September	Robert	KD2BKD
October	John	KD2NRS
November	Fred	W2AAB
December	Margaret	W2GB
January 2018	Brian	KD2OAZ
February	Bennett	KO2OK
March	Van	W2DLT
April	Aly	ALØY
May	Bruce	NJ2BK
June	Dave	N2AAM
July	Karl and Susan	W2KBF and W2SKT
August	Steve	KA2YRA
September	Paul	K2PJC
October	Skip	KD2BRV
November	Ed	WX2R
December	Tom	N2AAX

By the way, Randy (WU2S) has compiled a binder of all back issues of *The Resonator* and it's located in the club office. Thanks Randy!!!

Back issues are also available on our website.
<http://newsletters.FairLawnARC.org>

November 2019 Near and Far Net Controls

Here is the roster for net controls for the upcoming month as reported by Brian KD2KLN:

Date	Net Control
November 4	NP4H
November 11	KD2MOB
November 18	KD2KLN
November 25	N2AAM

The Near and Far Net now averages close to 20 check-ins on an average week! Cool beans.

But we need more volunteers to be net controls -- if everyone takes their turn it's less burden on the others. And it's easy. Volunteer --- don't wait to be asked (unless you really want to be flattered).

FLARC HOLIDAY PARTY IS COMING!

Continued from page 4.

Therefore we need ALL of our members to step forward to help with the auction and holiday party.

Please volunteer to help in some way. If you would like to help and prepare some of the items for the party that would be great. The club will pay the cost of the items you purchase. However, check with the Party Committee to coordinate.

The two or three turkeys that we serve usually come from donations from members. If you shop in Shop Rite and get your free turkey and would like to donate it please let me know. If you then continue to shop, or are a "low volume" shopper, please use the club's Price Plus number [see below] when you shop. Thanks



-- Gene WO2W

Theoretics Demystified

Sound reproduction!

One of the earliest methods of sound reproduction was purely mechanical, that is and was the gramophone, or more properly the graphophone or cylinder player. The first experimental ones used metal foil and one had to talk loudly into a diaphragm which was connected to a stylus which caused impressions of varying depth to be impressed upon the surface of the foil which had been fashioned into a cylinder which was rotated by a crank or a clock type mechanism as the sound vibrations were impressed upon it in a spiral groove. The impressions were a physical record of the voice, a track of the vibrations was then again passed under the stylus and produced sound. (Vibrations caused the stylus to move and conversely the moving stylus caused the diaphragm to move causing sound to emanate.)

The sound was very feeble and could only be played back a couple of times before the reproducing stylus would wear them out.

The principle is that the rotating cylinder was a way to present a time line upon which information was recorded and played back. All recording systems use this principle whereas there is a timeline and signals are impressed upon it as the timeline advances and then are retrieved in a reverse fashion. This is true whether the recording medium is a mechanically rotated cylinder, a mechanical disc (records as we know them), magnetic wire or tape with magnetic fluctuations impressed upon it, or optical discs with pits impressed upon them or a phase change dye (dye which is one color and changes to another, usually darker color which is read by a laser just like the pits on a regularly pressed cd) and lastly the infamous hard drives that we all know and love.

The newest recording medium is electronic which also uses a time-line but writes data to individual memory cells and has a timeline developed by an electronic clock that controls recording and playback. An example of this is a micro SD card with billions of storage points and can contain days' worth of music.

To get back to the early stuff: When early sound recordings were made before the advent of tubes and amplification, very large horns were used to concentrate to sound to be recorded onto the wax cylinder. Then again horns were used on the playback machines to amplify the sound to the listener. Think megaphones!

Continued in next column.

Theoretics Demystified, cont'd

As time went on vacuum tubes were invented and sound was amplified by them and the horns were no longer required, but newer devices were invented to capture sound. They were and are the microphone and the loudspeaker. There are several types of microphones, but they all convert sound vibrations into electronic copies of the sound. (Microphones were explained in a previous column.)

At the other end of sound reproduction are reproducers, loudspeakers and headphones. The difference being the size and level of output. Essentially both take electrical impulses and use them in conjunction with a magnetic field to vibrate a cone, a diaphragm, or a steel plate, as in the case of old headphones, or a small steel armature which is then connected to a cone assembly which then amplifies the vibrations and produces sound. Today's modern speakers use a cylindrical 'voice coil' suspended in a cylindrical magnetic field that is integrally connected to a cone and that cone is used to amplify the effect of the voice coil to produce sound. The variation of this is where the voice coil is acoustically coupled to a horn assembly as in a pa speaker.

Another type of reproducer is the crystal or Rochelle salt crystal which flexes when voltage is applied to it. One end of a thin long crystal is fixed, and an armature is attached to the free end of the crystal and then attached to a cone to amplify the sound vibrations. Like the dynamic microphone/speaker characteristic the crystal acts as a converter of electrical impulses to sound and vice versa.

Examples of the usage of crystal reproducers are tweeters and earphones as the sound pressure output is limited and the frequency range is from midrange to the upper audio frequencies.

-- by Fred W2ABE

Caloric Gathering



Steve KAZYRA and Brian KD2KLN sample the goodies at the October Speaker Series

Volunteers Needed!!

As you know, the club has grown considerably over the last year and a lot of us do not know the details of the annual FLARC auction (the day after Thanksgiving) and December Annual Meeting and holiday party (December 7), so I thought I would write a brief note to fill everyone in.

The club continues to replace and improve our station equipment. Raising money still matters and our auction is the ONLY fund raiser we do all year, so besides dues and other voluntary contributions this is the only money the club gets.

Therefore we need ALL of our members to step forward to help with the auction and holiday party. Please don't be a by-stander – volunteer to help the club.

For the auction it's setup, take-down and the actual running of the event. For the holiday party, if you would like to help prepare some of the items for the party that would be great. The club will pay the cost of the items you purchase. The two or three turkeys that we serve usually come from donations from members.

If you shop at Shop Rite and get a free turkey and would like to donate it please let me know. Use club's Price Plus Number when you shop – the number is 471 082 958 860 ... you can type the number in at the register, or take a copy of the tag shown on page 8 and have the cashier scan it.

-- Gene WO2W

Member Count Continues To Grow

Last year's October issue of The Resonator noted that the club had reached a total of 145 members. As we go to press the number is now at or about 162; an approximate 10% increase.

162!!



and help keep that number for 2020.

Congratulations!

Pete (KD2BMX) reports the results of the October 26, 2019 FLARC VEC Amateur Radio Exam Sessions:

Total Number of Candidates served: 5

Congrats to all -- all passed!!

Name	Call	License Earned
Terrance Roberts	--	Technician
Helen Yang	--	Technician
Joseph Johnson	--	Technician
Marlo Gonzales	--	Technician
Raymond Martinez	KD2SDC	General



Want To Help Set The Direction of FLARC for 2020?

Now is the time to begin thinking about what 2020 will mean for the club. The annual member survey is the starting point for measuring ideas and interests and now is the time to get your input into the member agenda.

If you have questions that you want to ask about the direction of the club, now is the time to do it. Send any topics or questions you want see answered to Ed WX2R at wx2r@arrl.net and he'll work them into the 2020 member survey which will arrive in your mailbox on or about **December 1**—a month earlier than previous years.

This year's input included special events, the voluntary donation fund, and opening the club beyond Friday nights. Great feedback from NJ'S fastest growing club.

2020 will be here before you know it.



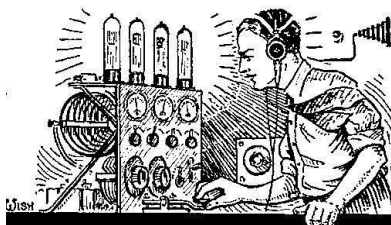


Image from May, 1926 QST, courtesy ARRL

The Way We Were -- By Fred Belghaus W2AAB

In The Beginning

No one knows with certainty the name of the world's first radio amateur, if by "amateur" we mean someone experimenting with radio on a private, non-commercial basis, purely as a hobby. We *can't* know this because no formal records were kept of the names of the earliest amateurs. We must eliminate inventors and scientists experimenting with wireless, whose goal was to profit from their work, either by fame or fortune. We must also differentiate, as was done in the early days of wireless, between those interested only in *receiving* "wireless" signals, with those who endeavored to *communicate* with others on a "hobby" basis. Rightfully, I think we should only consider "transmitting amateurs" as our "first parents."

In the earliest days of amateur "wireless," as it was called then, there was a small but dedicated group of experimenter-operators, most of them teenagers, eager to challenge the ether with simple, home-built equipment, and a telegraph key. These young pioneers strung antennas of several types, but generally, these consisted of as many wires as they could stretch across their backyards, and hoisting them as high as possible, in hopes of making contact with another station, somewhere... anywhere.

The transmitters were very primitive affairs, consisting of little more than an induction coil (frequently a Ford spark coil), home-made capacitors (typically Leyden jars), a home-wound coil made of copper strips or tubing, a small (usually home-made) fixed spark gap, and a bank of batteries (dry or home-made "wet" cells) connected in series. An inductor was either wired directly to the antenna (which was called an "aerial" in those days), or coupled to it with a second inductor, also home-made. Output power was usually no more than a few watts. Some, with more money to spend, used commercially made equipment and a large step-up transformer to increase the voltage from available power sources. A few of these stations were capable of running up to one kilowatt. I assume this is output, since power ratings were not yet based upon D.C. input to the final, tube stage of a transmitter, let alone Peak Envelope Power.

Below is a basic drawing of the simplest form of spark transmitter, as would have been used by beginning amateurs in the early days:

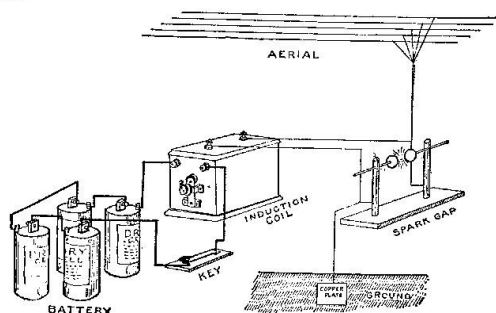
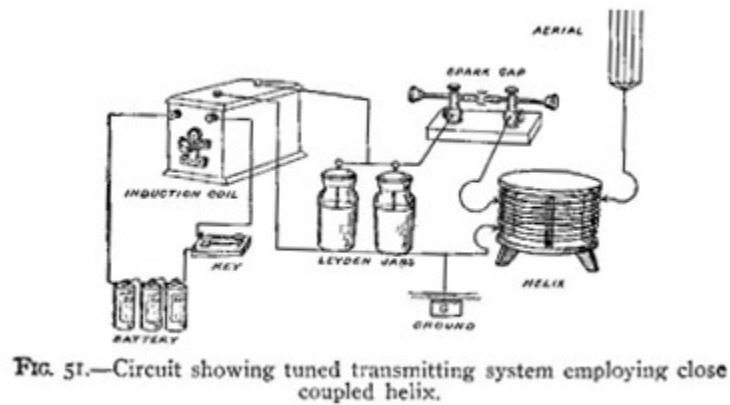


Fig. 7 The simplest practical transmitter that it is possible to devise for the purpose of sending messages.

Simplest spark transmitter, from Morgan, *Wireless Telegraphy and Telephony*
(Author's collection)

The Way We Were

No inductor or capacitor is used in the circuit above. It consists of only storage batteries, an induction (spark) coil, a spark gap, telegraph key, antenna and ground. This type transmitted on a wide range of frequencies simultaneously, and quite inefficiently. Next is an example of a “close-coupled helix” circuit, using a capacitor bank of two Leyden jars, and a helical inductor hard-wired to the antenna:



Close-coupled helix circuit, from Morgan, *Wireless Telegraphy and Telephony*
(Author's collection)

The “close-coupled” (actually direct-coupled) circuit offered a small decrease in the bandwidth of the spark signal, but it was still quite wide and could cause a lot of interference, especially at higher power levels or in the neighborhood of other amateurs.

One further refinement in the category of “simple” spark transmitters was the type using a “loose-coupled helix” circuit. This circuit used a primary and secondary inductor to couple the RF energy to the antenna. This was a far more popular circuit among early amateurs. A drawing of the “loose-coupled helix” arrangement is shown below.

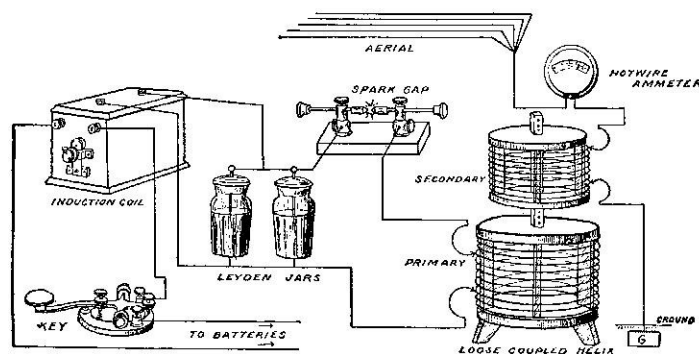


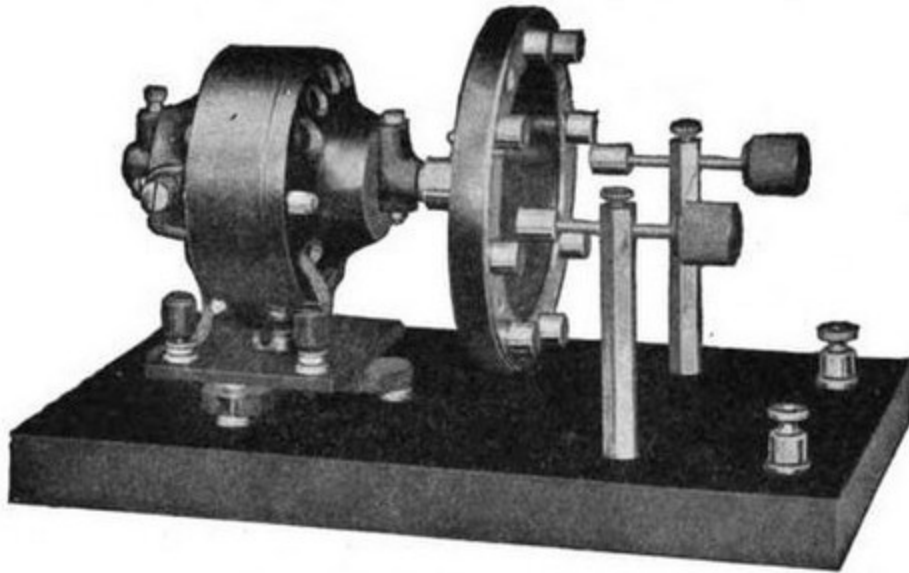
Fig. 3: Loose-coupled helix circuit, from Morgan, *Wireless Telegraphy and Telephony*
(Author's collection)

In addition to the second inductor to couple to the antenna, and fixed capacitors, an RF Ammeter of the “hot-wire” type was included to measure current delivered to the antenna. The object of monitoring this was to hopefully attain the highest value possible. This somewhat more advanced circuit became the most popular among amateurs, and was most often used by stations running lower power levels.

The Way We Were

By the time of World War I (1914-1918), rotary spark gaps came into common use. These were used by higher power stations. They consisted of a synchronous or non-synchronous motor, whose shaft drove a circular plate fitted with heavy contacts which, when rotated, interacted with mating contacts whose spacing could be adjusted in order to change the spark length. The higher the power, the wider the spacing required. The non-synchronous type was preferred by many amateurs. [1]

A typical rotary spark gap is shown in the first image, below. The second image shows a higher power rotary gap with transformer, induction (spark) coil, and what were then known as “pancake” coils to transfer the RF to the antenna.



Rotary Spark Gap
Image: Wikipedia

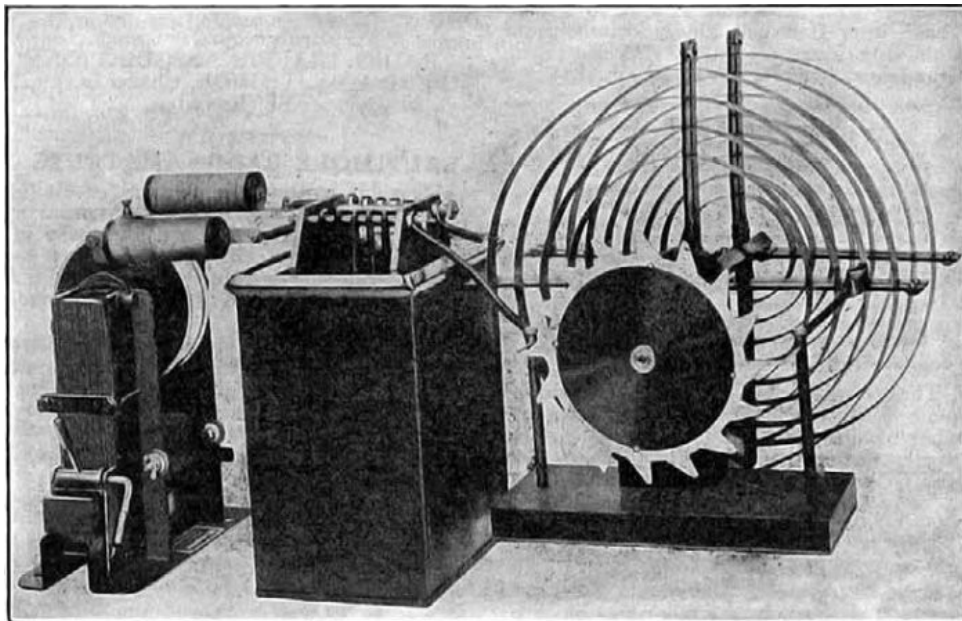


Image: Wikipedia

The Way We Were

The rotating contacts on the rotary gap would provide a path synchronous with the voltage produced by an alternator or other A.C. source. Some “quenching” (heat reduction) was provided to cool the contacts because each contact is rapidly moving away from their mating contact points. [2]

The transmitting inductors during the rotary spark gap period differed slightly from the helical inductors of the earlier period. These were circularly-wound in a vertical plane, the windings made either from flat copper strip or tubing, and the windings of each inductor insulated from the others typically with hard rubber insulation.

As with the earlier helix inductors, the primary and secondary inductors were placed near one another in their common electrical field. Both inductors together were officially known as the Oscillation Transformer (or “O.T.” for short) each inductor commonly referred to as “pancake” inductors.

Some rotary spark gaps took unusual forms. The figure below illustrates an innovative design by an amateur from Missouri.

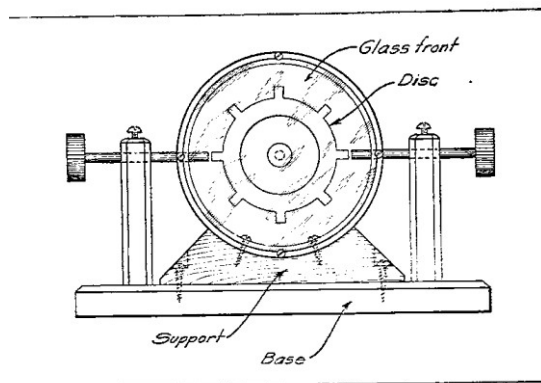
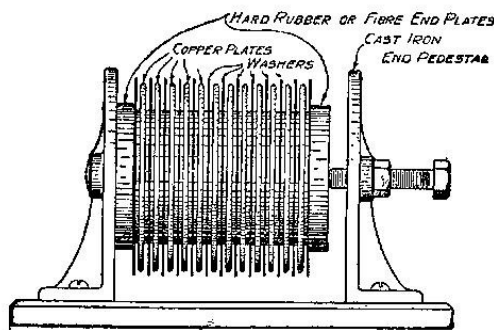


FIG. 50. Muffled spark gap.

Muffled spark gap, from Bucher, *The Wireless Experimenter's Manual*
(Author's collection)

It is a “muffled” type using an 1800 RPM A.C. motor driving an 8-contact stepped rotor. The whole assembly is enclosed in a fibre tube, and the front end covered with a circular piece of glass. [3] The objective here was mainly to reduce the noise produced from a conventional rotary gap.

Another, improved type of spark gap was known as “quenched.” Unlike the usual rotary gap that provided some degree of “quenching,” the “quenched” variety specifically was designed to cool the gap even more. A typical “quenched” spark gap is shown below.



QUENCHED SPARK GAP (Assembled)

Typical quenched spark gap, from Bucher, *The Wireless Experimenter's Manual*

The Way We Were

This was quite a departure from earlier spark gap designs. Also known as the “multiplate” type gap, the “quenched” variety was considered the most efficient type, but was rarely used by amateurs because it produced a poor note from 60 Hertz A.C. power sources, and was also quite difficult and expensive to build. To improve the note, a “resonance” type transformer and reactor in the high voltage transformer primary were required, along with additional components. [4]

The “quenched” gap shown above was considered suitable for power levels between 250 and 500 watts. It consists of a sandwich-type construction of round copper plates “carefully milled,” and “perfectly ground,” with sufficient surface area to provide a heat sink for cooling. Between these plates were round fibre insulating disks, allowing no more than 1/100 inch between sparking surfaces. The insulating disks also had to be treated with varnish, paraffin, or boiled linseed oil. In addition, the whole assembly had to be completely air-tight. [5] Yes, a very difficult device to build, indeed!

Telegraph keys used with spark equipment were of three types, based upon the power level of the transmitter. Low power stations, like those using only a Ford spark coil and dry cell batteries in series as a power source, were likely to use a key like this one. It was made by AMCO (Adams-Morgan Company) of Upper Montclair, New Jersey, and dates from about 1920.



AMCO spark key ca. 1920

Image: <https://picclick.com/Vintage-Telegraph-Key-by-AMCO-CW-Morse-Code-163093432508.html>

This key has a cast metal base, with black enameled finish. The lever is square, brass, and bent down slightly at the knob end. The remaining hardware is brass. The contacts are slightly larger than a landline telegraph key. Note that there is no “Navy knob” skirt under the knob.

Note also that there is no closing switch, which would be needed only on landline circuits, where the switch is used to open the normally closed circuit, and permit sending.

The Way We Were

In the medium power category, keys were somewhat larger, with somewhat larger contacts, like this one made by the Signal Electric Manufacturing Company of Menominee, Michigan, about 1920.



Signal Electric Spark Key, ca. 1920

Image: <https://timgori.pw/menominee-telegraph-key.html>

This key would probably be used with spark transmitters running about 100 watts or less. It includes a “Navy knob” skirt under the knob. This “skirt” served two functions. One was to protect the operator from possible flashover from the nearby contacts. The other was that the “skirt” allowed some fingers to rest upon it, thereby reducing operator fatigue after prolonged periods of sending.

The key is brass, with a machined, forged base. The lever is square, bent downwards at the knob end. Otherwise, the hardware is quite similar to landline keys. All metal parts except the knurled hardware and spring were given a lacquered finish.

High power keys were more rugged to handle the high currents delivered by transmitters that might have run up to one kilowatt! For one thing, the contacts were much larger than those found on a key like the AMCO and Signal examples. For another, these were “no-nonsense” keys chiefly intended for shipboard or other commercial use, and not for amateurs, although some amateurs used them. What these keys lacked in aesthetics they made up for in utility.



Here's an example of a 1916 “Boston” spark key made by the Clapp-Eastham Company of Cambridge, Massachusetts.

Image: http://www.telegraph-office.com/pages/images/Clapp_Easthm_spark_key.jpg

The Way We Were

This key has a solid marble base and square lever, similar to the Signal key, but longer. The hardware appears to be nickel plated brass. One source states that this key was originally used with a 250 watt spark transmitter. [6]

Receivers were also very simple, the simplest consisting of little more than a detector, adjustable inductor, sometimes a fixed capacitor, and headphones. The most basic type of inductor was the "Double-Slide" type, shown below.

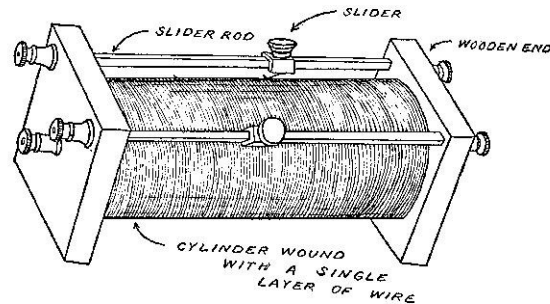


FIG. 78.—Tuning coil of the double slide type.

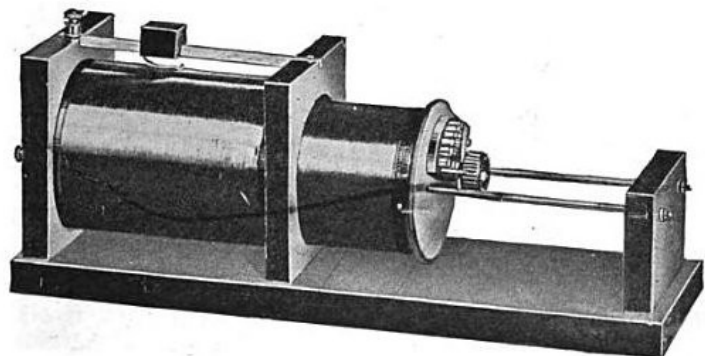
As the name suggests, this device consisted of a single-layer, solenoid wound coil with two slider contacts, for tuning. How many turns? I suppose as many as the builder could fit on the coil form! Things were a lot simpler then.

A somewhat better instrument was the "loose coupler." These consisted of primary and secondary coils, the primary one large, and the secondary much smaller. The primary coil was stationary, but the secondary could be slid farther in or out of the primary by means of two metal tracks, which changed the coupling between both coils.

The primary coil included a slider contact, which allowed the operator to either increase or decrease the number of active turns in the coil, and thereby select the wavelength. There were no calibration markings, however, so adjusting it was "hit or miss." It was connected to antenna and ground. The secondary coil was connected to the detector, and a capacitor was connected across its windings.

The secondary included a step-switch, each post of which provided additional "fine" tuning. The various adjustments were, however, interactive, so it could be difficult to tune in less than one signal at a time, for optimum strength and readability.

Loose couplers provided some selectivity, but not very much. The concept, though, with improvements, is still used in more elaborate crystal set designs, even today.



Loose Coupler. [Image: Wikimedia]

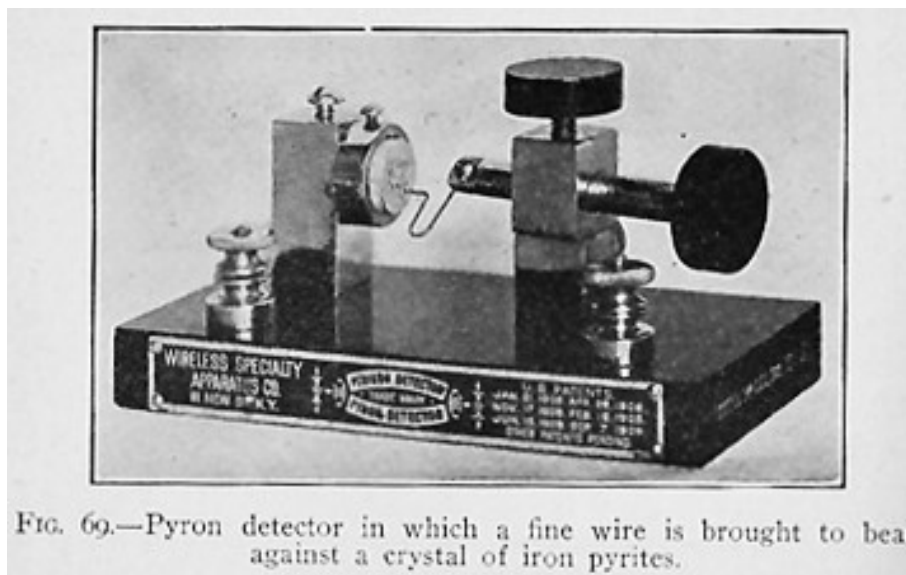
The Way We Were

The detectors were one of several types:

The most primitive was the “coherer,” consisting of a small glass tube containing iron filings, with a bare wire (optimally silver) passing through each end, and which had to be gently struck with a pencil or fingertip, in hopes of finding a “sweet spot” where signals could be heard. Others used a small hunk of galena, a type of naturally occurring crystal found in veins of lead ore, with a “cat’s whisker” contact which was a thin, coiled steel wire with a sharp point. Like the coherer, the principle was to use the “cat’s whisker” to find the “sweet spot” on the galena crystal, where signals were loudest. Some amateurs used a phonograph needle as a “cat’s whisker.”

Others used carborundum as a detector instead of galena, and a few used “electrolytic” detectors — which employed a very fine platinum wire immersed in a weak acid solution, thus forming a type of rectifier. A few used silicon detectors, the granddaddy of the tiny silicon diodes that would be manufactured many years later.

There were also the Barretter detector, the Radioson (Sealed-Point Electrolytic) type, Perikon Detector, Crystaloi, and Magnetic Detector - but these were generally not available to amateurs. [7] There was also the “Pyron” detector, which used a piece of iron pyrite in the same way as a galena crystal. This unusual detector is shown below.



Pyron Detector, from Morgan, *Wireless Telegraphy and Telephony*
(Author's collection)

The Way We Were

Although galena was the most popular with amateurs, the Perikon (see below) was also popular but more expensive. A description of this unusual device follows:

Two minerals, *zincite* (oxide of zinc) and *chalcopyrites* (copper-iron sulfide) are mounted in adjustable cups so arranged that the surfaces of the minerals can be brought into variable contact with one another. [8]

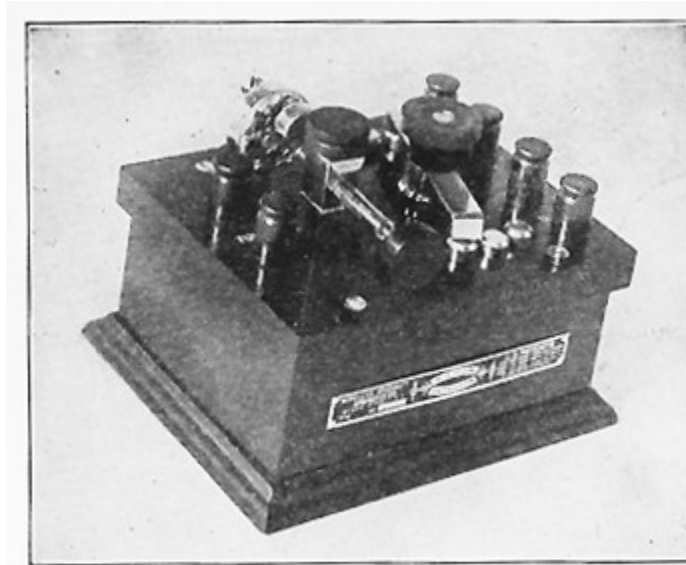


FIG. 70.—Perikon detector.

Perikon Detector, from Morgan, *Wireless Telegraphy and Telephony*
(Author's collection)

After 1909, the work of Edwin H. Armstrong with audions (early vacuum tubes) greatly increased the sensitivity of receivers, which ultimately would produce even greater innovations, finally rendering the simple mineral or other type detectors obsolete.

A typical receiving set-up consisted of several components, as shown below.

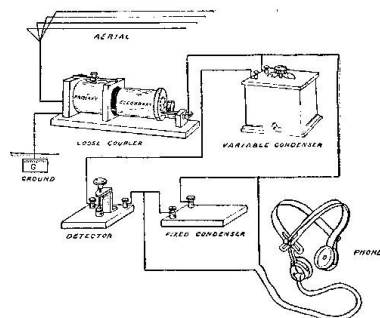


FIG. 85.—Diagram showing arrangement of rotary variable condenser in receiving circuit.

Receiving circuit, from Morgan, *Wireless Telegraphy and Telephony*
(Author's collection)

The Way We Were

The components are: Loose coupler, variable capacitor (called “condensers” in those days), fixed capacitor (“condenser”), detector, and headphones. The antenna and ground leads were connected to the primary windings of the loose coupler, and the headphones connected between the detector and one side of the fixed and variable capacitors. This is essentially the same circuit as that of a modern crystal set.

The fixed capacitors of those days were enclosed in a small wooden box with knurled nut terminals on top. The variable capacitors, however, were installed inside a wooden box or round protective Bakelite or hard rubber cover and base, with tuning knob on top, and sides of clear plastic. The tuning knob on either type had a pointer that could be adjusted over its range, with marked divisions from 1 to 100.

One side of the detector was connected between the junction of the headphones and fixed capacitor, and the other side to the variable capacitor. The additional capacitance was helpful in the early days, since amateurs were first relegated to all frequencies “200 meters and down,” which means from 1500 kHz down to the VLF range. This would only change in the 1920s, when the newly established broadcasting industry would be allocated from 540 to 1500 kHz, and later expanded to 1600 kHz.

Antennas also were simple affairs, often just a single end-fed wire, usually in the form of an Inverted L, from the transmitter, run vertically up the side of a building, then out, horizontally, to a single tie-point, often a tree in the back yard. If a tree wasn’t available, a wooden mast was constructed as a tie-point for the far end of the antenna wire. An alternate type was the “Tee” antenna, consisting of a single horizontal wire supported at the ends, with a single wire fed in the center or off-center to the transmitter. The “Tee” required two upright supports for the horizontal ends of the flat-top. Both the Inverted L and “Tee” are still popular and useful antennas today for the lower amateur bands, such as 160 and 80 meters.

There were also several types of multiple-wire antennas. The first was a simple multi-wire flat-top with single wire feed at one end, and referred to as a “flat-top” with x-number of wires. Electrically, this was just another form of the Inverted L, but with top loading. If fed in the center, it was a top loaded form of the “Tee.”

A typical amateur version of a 4-wire flat-top (Inverted L) antenna is shown below, installed between the roofs of two buildings.

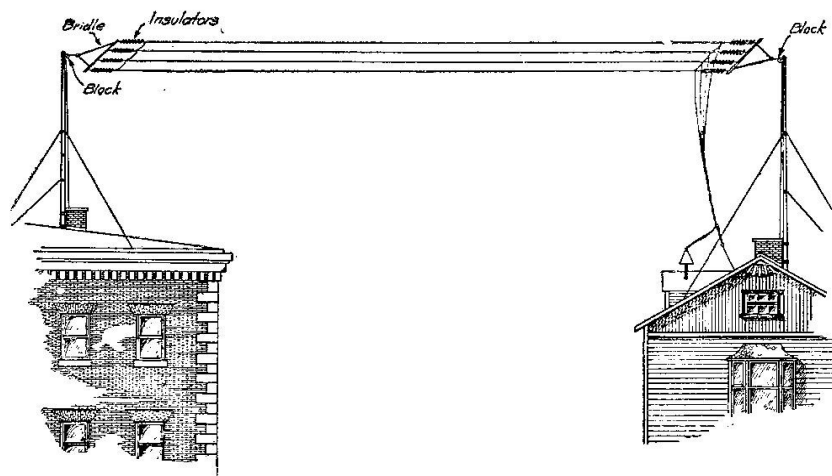


FIG. 114. An inverted “L” aerial suitable for the amateur station.

4 wire flat top (inverted L), from Bucher, *The Wireless Experimenter’s Manual*. (Author’s collection)

The Way We Were

Here is a center fed multi-wire "Tee" antenna on two wooden masts:

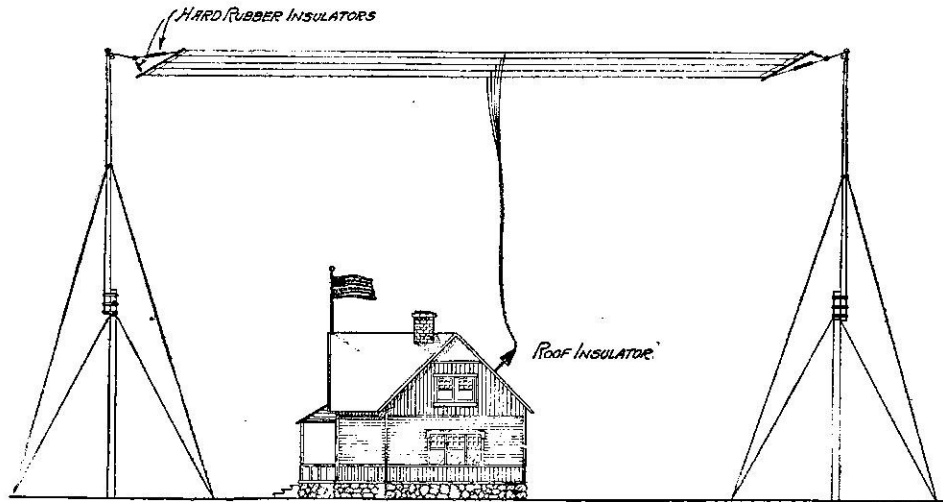


FIG. 115. A "T" aerial which is generally used where it is more convenient to take the lead-in wires off the center of the flat top rather than off the end.

Multi-wire Tee antenna, from Bucher, *The Wireless Experimenter's Manual* (Author's collection)

Another early multi-wire antenna was the "harp" antenna, which was run vertically instead of horizontally, with several wires running downward, and ending in a single wire to the transmitter.

Three types of multi-wire vertical antennas are shown below.

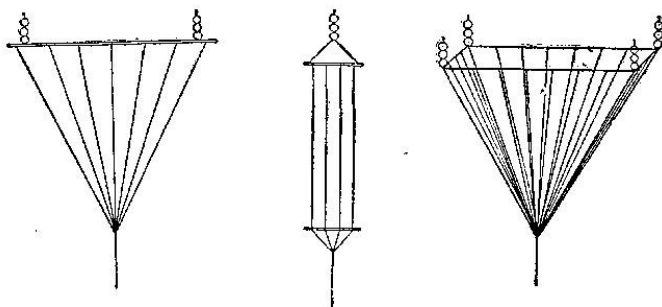


FIG. 15.—Vertical aeriels of the "grid," "fan" and "inverted pyramid" types.

Multi-wire vertical antennas, from:
Morgan, *Wireless Telegraphy and Telephony*
(Author's collection)

The first image is a form of the "harp" or "fan" antenna, with single feed wire running downwards to the transmitter. The schematic symbol for an antenna is derived from this type.

In the middle is a "grid" antenna.

The "inverted pyramid" type at right was less common among amateurs and was chiefly used at high power commercial stations, where each corner was supported by tall towers, with the transmitting station located in a small building placed on the ground, below the point of the "pyramid."

The Way We Were

Antenna supports were usually trees, poles, or wooden tripod masts; but some amateurs actually built their own metal towers.

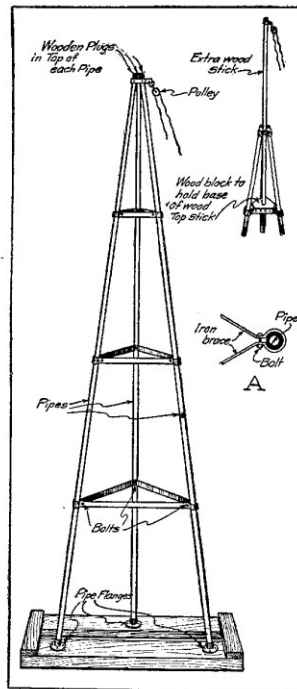


FIG. 116. Self-supporting triangular tower designed by an amateur experimenter.

Home-made metal tower, from Bucher, *The Wireless Experimenter's Manual*
(Author's collection)

This masterpiece of construction was designed by a Robert Kennedy of New Jersey, and is a monument to the ingenuity of radio amateurs. It is a self-supporting triangular tower made from three lengths of one inch steel gas pipe separated at their base by one fifth their length. Further description follows:

[The legs] are bound together at equidistant spaces by an iron strap rigidly attached to each pipe as shown in Detail A. The strap passes part of the way around the pipe. A bolt is inserted and screwed up tightly as shown. In order to increase the height, a wooden top-mast may be fastened to the top. This is supported by a piece of heavy wood placed at the first brace from the top as is shown in the upper right hand part of the drawing. [9]

Although probably 99.99 percent of the amateurs used telegraphy to communicate, there were a few experimental amateurs who tried telephony. Several earlier schemes for sending the human voice without wires led to the discovery of what was then known as the "Speaking" or "Singing" Arc.

An electric arc consists of two carbon rods, the ends of which are turned down to form a point, their opposite ends connected to a generator. The pointed ends are brought together momentarily, then separated a short distance, and by being separated, an electric "flame" or arc is formed between the points. The "flame" or arc is a very bright, white light. It was discovered that if a carbon telephone "transmitter" (microphone) was placed in the circuit, the "flame" or arc could be *modulated* by the human voice.

The Way We Were

One form of a “Speaking Arc” is shown below.

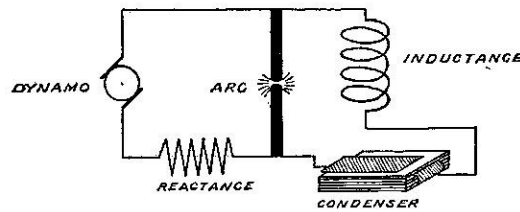


FIG. 138.—Circuit showing how a singing arc is arranged.

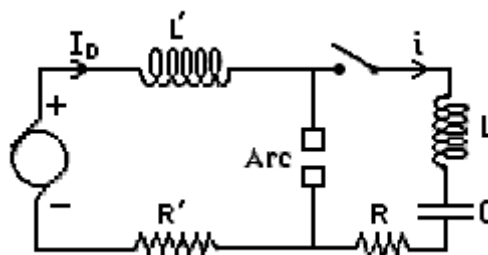
“Singing” Arc, from: Morgan, *Wireless Telegraphy and Telephony*

In 1902, German experimenter Ernest Ruhmer set-up a “Speaking Arc” on board a ship, using the ship’s arc light as the system’s principal component, along with a telephone transmitter (carbon microphone). At the receiving end, a selenium cell was used at the focal point of a large reflector, connected to a telephone “receiver” (single headphone), and powered by a battery. The voice was heard clearly at a shore station up to 3 miles away. [10]

But the transition to a successful wireless spark station using this method would not be possible because of the wide variations in the amplitude and frequencies of a human voice, the modulation would be very choppy and much content would be lost. Only sustained, loud sounds could be transmitted clearly using spark, and only for a very short period.

Spark transmitters produce “damped” waves – that is, spark bursts of short duration that decay rapidly. Obviously, the human voice, with its complex waveform, would not be appropriate for this type of transmitter. Amateurs tried various schemes for successful voice transmission, but soon discovered that a more efficient means of transmitting voice was needed.

A number of experimenters worked on this problem, including Lee De Forest, but it was not until Danish engineer Valdemar Poulsen developed a “wireless telephone” using “undamped,” high frequency oscillations that voice communication became at least partially practical. Poulsen’s transmitter was constructed in 1902 and was known as the Poulsen Arc, or Arc Converter.



Poulsen Arc – From: *A Working Poulsen Arc Oscillator* – See Note [11]

The Way We Were

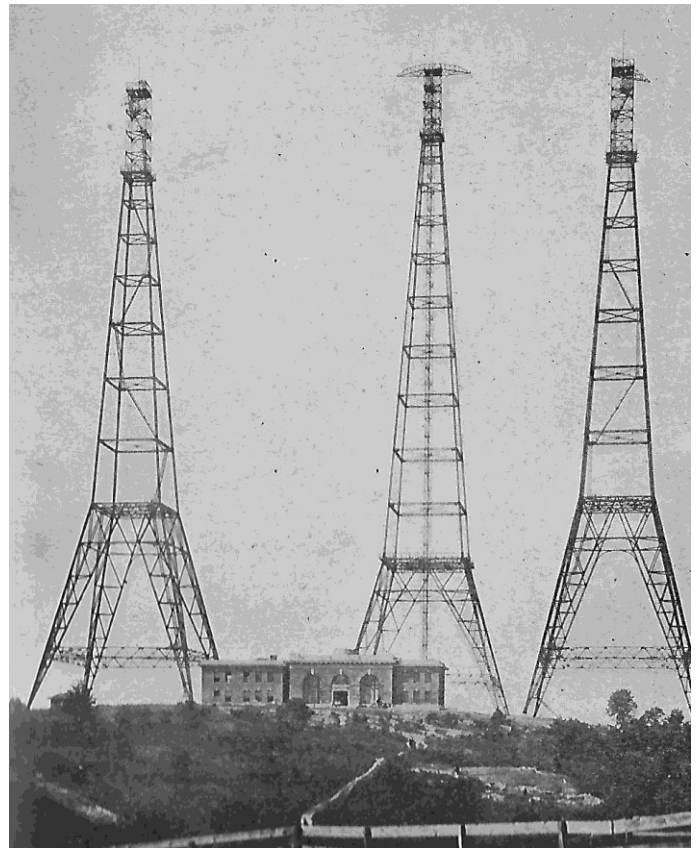
Poulsen's arc transmitter was certainly a milestone in the history of wireless communication, but very few amateurs could construct such a device successfully. In past years, I have read about and spoken with some old timers who remember the arc transmitters, and one of their comments was that the operator had to be very careful when speaking into the microphone. The high voltage, high frequency generator was connected directly to the microphone, and if the operator's lips got a little too close to it, the result was a painful shock not easily forgotten!

Canadian-born scientist Reginald Fessenden is credited with the first practical use of amplitude modulation, using a high frequency alternator transmitter located at Brant Rock, Massachusetts. This was the world's first broadcast, which included voice and music. It took place on Christmas Eve, 1906, and was received by ships within several hundred miles. [12] One can only wonder how astonished the wireless operators of that period must have been to hear this broadcast instead of the usual dits and dahs of telegraphy in their headphones!

Fessenden was no beginner in wireless experimentation. He held an experimental license, 1XS at his Massachusetts laboratory, and later was licensed in Bermuda with the call VP9F. He had actually bested Marconi's efforts at transatlantic telegraphy earlier in 1906. Marconi's efforts in 1901 were one-way only. Fessenden accomplished two-way communication. Amazingly, he also held a patent for continuous wave (CW) transmission in 1901, believing it to be more efficient than spark. Unbelievably, the electrical world evidently did not show any interest in this concept, and it was ignored until many years later. [13] If only the "experts" of those days had paid attention to Fessenden, we could have gotten rid of spark much sooner!

What were the amateur bands like in the early days? In a word: chaotic. There were high power commercial stations sending message traffic to ships; military stations, especially the Navy, doing the same; commercially-motivated experimenters hoping to make their fortune through new discoveries and, amid all this, a handful of amateurs, mostly teenagers, trying desperately to compete with all of them for air space.

Imagine, if you can, being an amateur in northern New Jersey in the early days. You would be running less than 100 watts on spark, often just a few watts, and covering most of your loose coupler's tuning range were 150 to 300 Kilowatt signals from commercial stations in New Brunswick and Tuckerton. In addition, there was the ever-present U.S. Navy transmitter at Arlington, Virginia, the famous station NAA, with its massive towers, sending messages to ships at sea, putting in big signals up and down the Atlantic coast.



The towers at NAA, Arlington, VA
Image: Bucher, *Practical Wireless Telegraphy*, 1917

The Way We Were

There were also high power commercial spark stations emanating from Sayville, Long Island and Marion, Massachusetts – both of which would be clearly heard in your simple amateur receiver. How well do you suppose your little Ford spark coil would fare in competition with these titans of the airwaves? Not very well, I'm sure.

But that's what things were like in the early days. It must have been frustrating, if not maddening for these early amateurs to make any contacts at all, unless they were located across town, or not more than say, fifty miles away, at most.

Compare the image above, from high power Navy station NAA, with the image below of a typical amateur station, using the typical equipment of the time, from a picture taken about 1912.

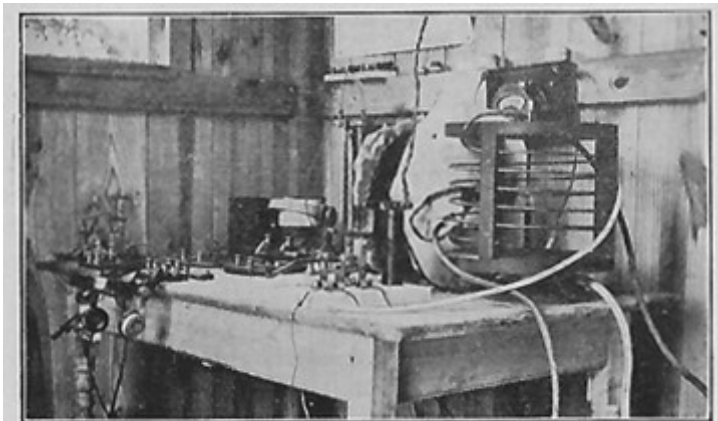


FIG. 150.—An amateur wireless telegraph station.

Image from: Morgan, *Wireless Telegraphy and Telephony*

And yet, despite all the challenges of the early days, many amateurs pressed on, stubbornly, dodging high power stations and their often unkind remarks directed at them, and the less than sophisticated equipment available to them.

Often, amateurs would attempt to communicate with these non-amateur stations, the commercial and military stations finding the amateurs a small but annoying nuisance. Sometimes, the amateurs deliberately interfered with these other stations, inspiring the commercials and military to insist upon licensing to effectively, do away with amateurs entirely.

There was a shutdown of all amateur communication during World War I, and for a time it seemed that we would never return, due to attempts by the Navy to control all wireless stations – with the exclusion of those pesky amateurs. But a change of heart occurred, after it was acknowledged that amateurs provided much needed assistance to the government through their efforts as military operators, and seeing their future potential as a source of qualified operators and experimenters, amateur radio was allowed to survive.

With the availability of vacuum tubes for amplification in receivers, the possibility of greater distances became a reality. Then, further developments in receiving improved sensitivity and selectivity, from regenerative sets to TRF (Tuned Radio Frequency) receivers, and finally the superheterodyne, which revolutionized reception. But it would be only within a few years that vacuum tubes would be employed in transmitters, too, using the new technology known as “continuous waves” or CW.

Amateurs began using CW in preference to spark by about 1921, but spark was still being used by maritime stations until it was finally outlawed in 1934. Amazingly, some ships still maintained spark transmitters even later. One of my uncles was both a ham and commercial maritime operator, and he once told me that he served on a U.S. registry vessel in the late 1940s that had a spark rig in the radio room, “for emergencies” in case the regular CW transmitter became inoperative and could not be repaired.

The Way We Were

In subsequent years, CW would prove to hold its own against all competing modes, maintaining its popularity to this day. If you doubt that, just listen to the CW bands during a major contest, or when a rare DX station is on the air. I can't help but wonder for how long the "newer" modes will still be as popular?

It would be far beyond the scope of this column to cover all the technical developments that took place in those early days of wireless. The best that can be offered here is a brief introduction. There are many articles online, and many books available for those who wish to pursue this fascinating subject further.

One excellent article for additional reading on this subject, but from a commercial and Australian perspective, will be found in Note [14], below. Next month, we continue our look at the early days of amateur radio, focusing on local amateur stations operating during the 1920's.

Until next month...

73,

Fred W2AAB

WA2ALY Is Honored

Larry WA2ALY recently received his ARRL **QRP** DXCC plaque from the ARRL and displayed it at the QRP presentation in October. This means he contacted and confirmed QSOs in at least 100 countries using FIVE WATTS or less RF output.

Congrats Larry!!



Larry WA2ALY

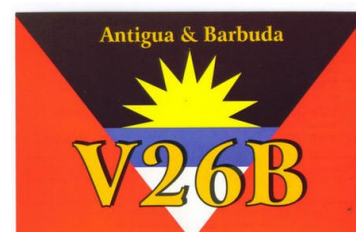
W2DLT Among The Chosen For Annual CQ WW SSB Contest

Our own Van W2DLT has been selected to be one of the elite hot-shot SSB contest ops at **V26B** for this year's CQ WW SSB contest.

Check out the QRZ page at <https://www.qrz.com/db/v26b>

He will be down there to operate with some of the best contest ops in the world ! Maybe we can get him to do a program on it as part of the FLARC Speaker Series, yes??

Van is one of the club's many contesters and has mentored many of us in best practices. He has devoted much time to FLARC and continues his dedication to us even having fled Fair Lawn for beautiful Lords Valley PA.



The Way We Were

NOTES:

- [1] Bucher, Elmer H., The Wireless Experimenter's Manual, Revised Edition, New York, Wireless Press, Inc., 1920, pp. 112
- [2] McEwen, Neal, "A Quenched Spark Gap of Unknown Make," *The Telegraph Office*, at: http://www.telegraph-office.com/pages/quenched_gap.html
- [3] Bucher, Op. Cit., p. 116
- [4] Bucher, Op. Cit., p. 118
- [5] Bucher, Op. Cit., p. 119
- [6] The Sparks Telegraph Key Review, Spark Key Project, at: <https://www.zianet.com/sparks/sparkmakers2.html>
- [7] Secor, H. Winfield, "Radio Detector Development," *Electrical Experimenter*, January, 1917, pp. 652-653, 680, 689-690, available at: <https://earlyradiohistory.us/1917de.htm>
- [8] Morgan, Alfred P., Wireless Telegraphy and Telephony, 6th Edition, New York, The Norman W. Henley Publishing Co., 1922, p. 57
- [9] Bucher, Op. Cit., p. 155
- [10] Morgan, Op. Cit., p.122
- [11] "A Working Poulsen Arc Oscillator," at: <https://pe2bz.philpem.me.uk/Comm/-%20ELF-VLF/-%20Info/-%20History/PoulsenArcOscillator/poulsen1.htm>
- [12] "Fessenden's Christmas Eve Broadcast," *Engineering and Radio Technology Wiki*, at: https://ethw.org/Fessenden's_Christmas_Eve_Broadcast
- [13] Belrose, John S., "Reginald Aubrey Fessenden and the Birth of Wireless Telephony," *IEEE Antennas and Propagation Magazine*, Vol. 44, No.2, April, 2002, at: <http://fessendenmilestone.quartomese.com/Documents/FessendenWireless.pdf>
- [14] Butler, Lloyd, VK5BR, "Before Valve Amplification – Wireless Communication of an Early Era," (originally published in the journal *Amateur Radio*, July, 1986. Available at: <https://pdfs.semanticscholar.org/7a72/e13ff472aad3283078b6f9f0e682031790ef.pdf>
- Image of NAA towers from: Bucher, Elmer E., *Practical Wireless Telegraphy*, 3rd Revised Ed., New York, Wireless Press, Inc., 1917

Fair Lawn ARES/RACES Corner (continued)

Please sign up for various nets and activities taking place at the following web address: <https://arrl.volunteerhub.com/lp/nnj>

The FL-ARES KB2FLA Net takes place every Wednesday at 7:00 PM on the FLARC Repeater. However, one Net per month is replaced with a video learning session provided by Randy WU2S. This month, we may have a video session on the 3rd Wednesday - November 20th, in place of the FL-ARES Net. Details regarding the video session will be provided in an upcoming email to our membership. Please join us every Wednesday for any updates, messages or activities which may take place. FL-ARES would like to thank the FLARC for the use of its repeater.

Now, getting back to FL-RACES:

Our next FL-RACES KB2FLR net will take place on Wednesday, November 13th at 1920 hours. Please make a note of the time. The Fair Lawn ARC Repeater is used (RX 145.47 MHz / TX 144.87, PL TX Tone 167.9 Hz). Thank you to the Fair Lawn Amateur Radio Club for permitting FL-RACES for using the repeater.

FL-RACES is part of several RACES groups which operate within Bergen County and from time to time has training opportunities with Bergen County RACES.

The volunteer efforts of our members are very much appreciated.

Our monthly meetings usually take place right after the FLARC business meeting. Please join us for the next FL-RACES meeting.

If you are interested in joining the Fair Lawn RACES, please contact me. You don't have to be a Fair Lawn resident to be a part of Fair Lawn RACES.

For information regarding Bergen County RACES, please go to <http://www.bcnjraces.org>.

Thank you very much. 73.

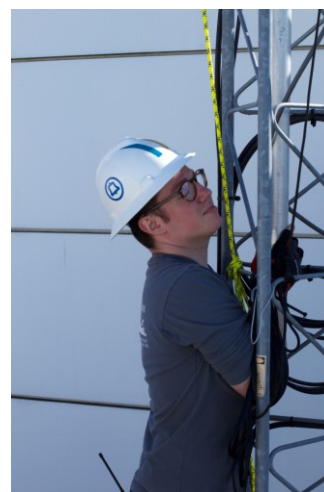
David KD2MOB

Repeater Repairs Made

The thunderstorm damage which hobbled W2NPT/r was repaired on October 19 by a phalanx of volunteers.



Brian KD2KLN and Brad K2MC on the tower



What's left of the old repeater antenna after the lightning strike



New Packet Radio and AREDN Mesh Networking

There is a new tool to extend an AREDN mesh network through difficult terrain. French inventor Guillaume F4HDK released an open source project this year consisting of hardware and software to transmit data on the 70 cm band. In spite of being named new “packet” radio, Guillaume uses standard IP protocols and not the older AX.25 specifications.

Guillaume writes “I have been a hobbyist and maker for almost 15 years now. I like inventing things and diving into low-level things. In 2013, I was looking at a protocol called NBP, used to create a data network over amateur radio links. NBP was developed in the 2000s as a potential replacement for the venerable AX.25 protocol that’s been in use for digital links since the mid-1980s. I believed it was possible to create an even better protocol with a modern design that would be easier to use and inexpensive to physically implement.

It took six years, but the result is New Packet Radio (NPR), which I chose to publish under my call sign, F4HDK, as a nom de plume. It supports today’s de facto universal standard of communication — the Internet’s IPv4 — and allows data to be transmitted at up to 500 kilobits per second on the popular 70-centimeter UHF ham radio band. Admittedly, 500 kb/s is not as fast as the megabits per second that flow through amateur networks such as the European Hamnet or U.S. AREDN, which use gigahertz frequencies like those of Wi-Fi. But it is still faster than the 1.2 kb/s normally used by AX.25 links, and the 70-cm band permits long-distance links even when obstructions prevent line-of-sight transmissions.”

The AREDN team is looking to integrate NPR with existing AREDN mesh networks. Andre K6AH near San Diego, California and Damon K9CQB in Virginia are setting up tests between AREDN networks and sites with poor RF connectivity due to foliage or terrain. It is hoped that the 70cm data links will extend a mesh network. The data rate over the NPR RF links is considerably slower than what is typically seen over the multimegabit per second AREDN links. It is expected that the slower NPR links will be good enough for text data and control of remote AREDN node but not sufficient for Voice-over-IP telephony or streaming video. Hams in Germany are also experimenting with NPR to access existing local high-speed amateur radio networks from places that cannot have the line-of-sight radio links required for 2.4- and 5.6-gigahertz signals.

Guillaume notes that “Any connected PC or network sees the radio link as just another IPv4 connection with no need to install specific NPR software. The NPR modem can be configured over this link or via a USB connection. The total cost of the hardware is about US \$80, and a partner, Funtronics, will be making kits available for purchase online. If you want to build a modem yourself from scratch, detailed instructions and the NPR protocol software are available from my Hackaday project page.”

He concludes “Although it’s usable, I would be the first to admit that NPR is a young technology and probably not totally mature. In addition to increasing the number of clients that can be supported by a central modem, I have a number of enhancements in mind, such as adding support for QoS (quality of service) prioritization, so that NPR could be used to transmit digital voice; allowing Ethernet frames to be transported directly; and separating downlink and uplink frequencies.”

So it looks like there may be a viable way to get through all of the trees which prevent good quality high-speed data links on the microwave bands. The AREDN community expects to gather a lot of useful information over the next six months about the viability of integrating the F4HDK NPR tools with our mesh networks.

73,

Randy WU2S

See Randy’s notes on next page.

Guest Editorial

By Robert D. Bowers N4FBZ

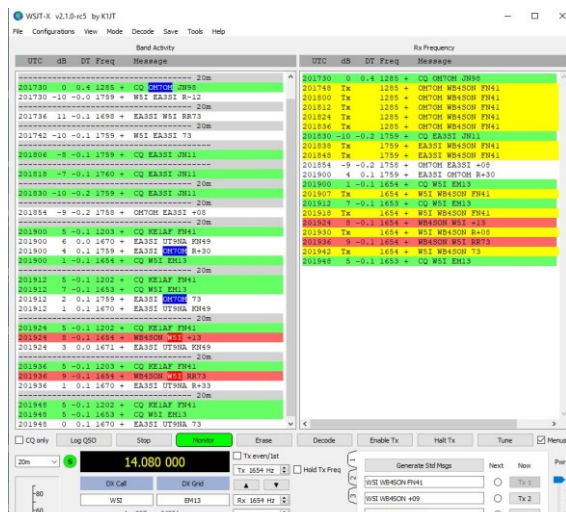
I've seen entries and posts about how FT8 was "Killing Amateur Radio!" I remember hearing something like that when I was first licensed... about how SSB ("Donald Duck") was killing Amateur Radio, ditto for Computers, ditto for Packet, ditto for PSK31. The most vocal people were the single-mode-only people, especially CW. For a while (in the early 80s) I could copy CW, but as my health progressed, it became more and more spotty. That put me in a negative category with the complainers, who insisted I hadn't tried hard enough. I've done some computer CW, but prefer other modes. I happen to really like JT65 and its new version FT8.

FT8 and JT65 are cutting-edge stuff, enabling people to work others when they couldn't even hear them (I've experienced that several times over the years) - signals so low that CW wouldn't get through. That's just one aspect of Amateur Radio - the development of new techniques and technologies - and experimentation.

A friend and I have also noticed things on HF (using JT65) which aren't supposed to be possible - for instance, one day I worked a guy over a 400 miles distance with around a single milliwatt into a dipole at 55 ft - from a watt downward the signal report on both ends remained stable (-14 or so) - I think on 40m (have to see if I can find the log - may have lost it in a computer crash). That was back when Joe Taylor (a friend of mine) was working on JT65-HF.

Editors Note:

We don't often run Guest Editorials but this one had significance.



Notes For Tech Talk

References

1. Hackaday NPR project description, Introduction, Advanced User Guide, Firmware and PCB boards
<https://hackaday.io/project/164092>
2. IEEE Spectrum November 2019
<https://spectrum.ieee.org/geek-life/hands-on/build-a-longdistance-data-network-using-ham-radio>
3. Kits and assembled units
<https://www.elekitsonparts.com/product/npr-70>
4. AREDN – Amateur Radio Emergency Data Network <https://www.arednmesh.org>

Volunteer For The FLARC Auction

The most important event in the volunteer calendar is the day after Thanksgiving and the Great FLARC Auction. For flyer & details, visit

<http://auction.FairLawnARC.org>

Show your support for the club and have fun at the same time. See Gene WO2W for details.

Don't be a bystander... volunteer!!



Gene WO2W leads the annual FLARC Auction

The Great FLARC Auction

**Friday
November 29th**

FLARC Has Two Hiram Percy Maxim Contest Winners!!

Fred W2AAB reports the following good news!!

I just saw the results of the HPM/150 Event which ran from August 31 through September 8, 2019, and which celebrated the 150th Birthday of Hiram Percy Maxim, the co-founder and first President of the A.R.R.L.

Although I was out of town for 5 days, I managed to garner a score of 8,145 points for working other stations participating in the event. A copy of the certificate earned follows. [See attachment]

W2AAB had the highest score among entrants in all three sections of the Hudson Division (NNJ, NLI and ENY).

Jim Cooper, W2JC, took second place in the Hudson Division, with a final score of 8,040 points.

FLARC people are winners!

In A Nutshell

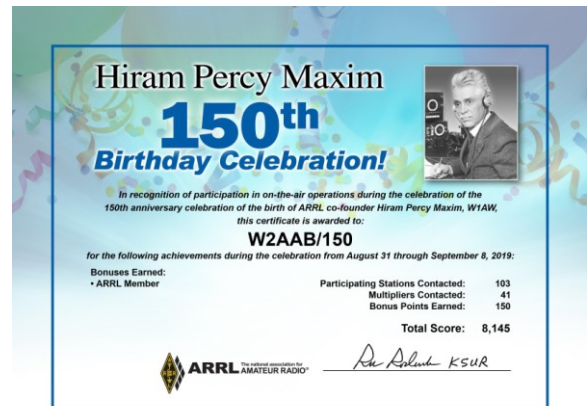
Solder safety and tips

In this world of ecological consciousness, the use of lead in solder is vastly becoming a thing of the past, at least for those in nonmilitary applications. The military and possibly the aeronautics industry may still use solder with lead due to the inherent flexibility needed by pc boards under stress. In my past life of working in hospitals, lead solder was forbidden to be used in repair work in patient areas.

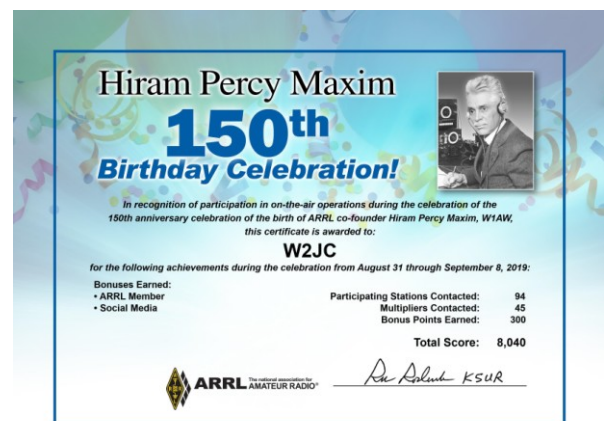
Using lead free solder requires a higher temperature and clean work area to insure a good connection. A benefit of using 'silver solder' is the connection strength as you can butt solder component wires to connection points and the wires will break before the soldered connection will. This makes it easy to solder things in hard to reach places. The caveat is that the solder connection must be perfectly done. (You can get away with not having to wrap wires around lugs, etc.)

As with anything else, experience is the key! I tell anyone new to soldering to practice, practice, practice! The working temperature of lead-free soldering is higher than old 69/40 lead solder. The benefit is much cleaner work in the end.

FLARC Has Two Hiram Percy Maxim Contest Winners!!



W2AAB Certificate



W2JC Certificate

In A Nutshell (Continued)

All this being said, you need to have good equipment and accessories. You need a good soldering iron, preferably a digital readout station, a chore boy type brass looking cleaning pad, paste flux and solder wick which is a copper braid which sometimes is impregnated with flux. (A trick here is to dip the wick into solder flux as the flux becomes a heat transfer agent and improves the ability of the wick to suck up the solder.) All of the equipment is available from Wayne Electronics or Route 22 Electronics and online but a hands on of what you are getting is better. You get what you pay for and a lot of online stuff is junk!

Remember to use your PPE, that's Personal Protection Equipment! Such as safety glasses and gloves and a filter fan to help alleviate breathing of flux smoke is desirable if in a closed area. Happy soldering!

-- Fred Wawra, W2ABE, 73!



FLARC Proof Of Performance

Why is FLARC New Jersey's most exciting radio club?

Here are just a few reasons so far in 2019:

- Field Day at Memorial Park
- Winter Field Day
- World Amateur Radio Day special event
- Earth Day At Great Falls special event station
- Garretson House special event station
- Memorial Day parade public event
- Portable Day(s) with BARA
- Fair Lawn Street Fair(s) public event
- Independence Day Fireworks public event
- Vintage Night
- "Kids Day" public event with TCRA
- North American QSO Party
- NJ QSO Party
- Foxhunts
- Summer VANFEST at W2DLT
- Field Trip to iHeart Radio

Plus:

- Thursday Night open house and CW class
- Soldering classes
- RACES/ARES public service
- Monthly w sessions
- Projects such as end fed and 2m antennas
- Annual member interest survey
- Weekly Monday "Near and Far" Net
- FLARC auction
- FLARC Holiday Party free to members

Plus:

- Over 45 consecutive months of speaker programs including K1JT in 2019!
- New equipment in the shack!
- New antennas on the roof!
- Coming Soon: Tuesday evening and Saturday morning club openings
- And...a clubhouse!!

That's why FLARC is the best club around!!
Join us with more activities, speakers and projects to come!

BCB DXing and 160 Meters

In my experience (1961-present) propagation is at an all-time low. Hard-core DXers meanwhile simply focus on where DX can be found. Band dead? Drop down one band and see if it's open. It's not? Repeat the process. During the day I am finding 20 and 30 meters to be the best DX bands. At night, 40 is open to all areas in darkness as is 80. 160 is open as well but is a challenge to one's tenacity. DXing on 160 requires attention to antenna design and the desire to work DX the old-fashioned way. The old-fashioned way is to tune the band and see what's on.

Most rare DX on 160 is never spotted on the CC-Cluster system. I recently asked a proponent of the radio-without-knobs variety how he works DX on 160. "Just click the spots" was his reply. On 160 that will cause you to miss most of the available DX. Meanwhile, there are internet-based chat rooms where DX tips are passed – a non-automated spotting network. A lot more than just "spots" are passed around in those chat rooms. Where the DX is listening, where the band is open, etc. is passed around. The chat-rooms are typically ad-hoc and joined by invitation. If you are serious about working 160, and/or our new bands of 630 meters and 2,200 meters, you will find those chat-rooms or they will find you. Or you will start one of your own.

When I started out (pre-internet), the "chat rooms" were on 2 meter simplex, and the mode was AM. A Gonset Communicator could be found in the shack of a lot of DXers.

Meanwhile, while my personal interests these days are on the two bands where I still need a lot of countries – 6 meters and 160 meters – it's not much fun spending an evening tuning 160 and hearing little. Fortunately, there are numerous ways to quickly see if 160 is open.

An exhaustive treatment of 160 propagation and how to check it on any given night is beyond the scope of this article. I would, however, like to highlight one method not in widespread use: the use of the AM broadcast band to check propagation. Not the US broadcast band, the world-wide broadcast band.

Fortunately, European medium wave broadcast transmitters are on 9 KHz spacing, different than the 10 KHz spacing used in the US. This results in many European stations not being buried by US stations since they are on frequencies in between the US stations. An example is Radio Moldova, which transmits on 1413 KHz - with 500 KW.

Can you "hear" Radio Moldova? No, never. The modulation of US BC band stations covers ± 5 KHz from the carrier frequency – so 1413 KHz is covered over by the modulation of the US stations on 1410 KHz. Yes, that's plural. BUT, you can "see" Radio Moldova on a spectrum scope.

The figure on the following page shows Radio Moldova at N4GG on a night with poor conditions on 160. Radio Moldova is barely above the noise – not a good sign. With 500 KW and an antenna system much bigger than any ham can manage, Radio Moldova will need to be many dB above the noise before European amateur signals can be heard. The night I made this image I quickly moved up to 80 and 40 meters – conditions didn't warrant spending time tuning 160.

Around The Shack

A list of European medium-wave BC stations can be found on Wikipedia:

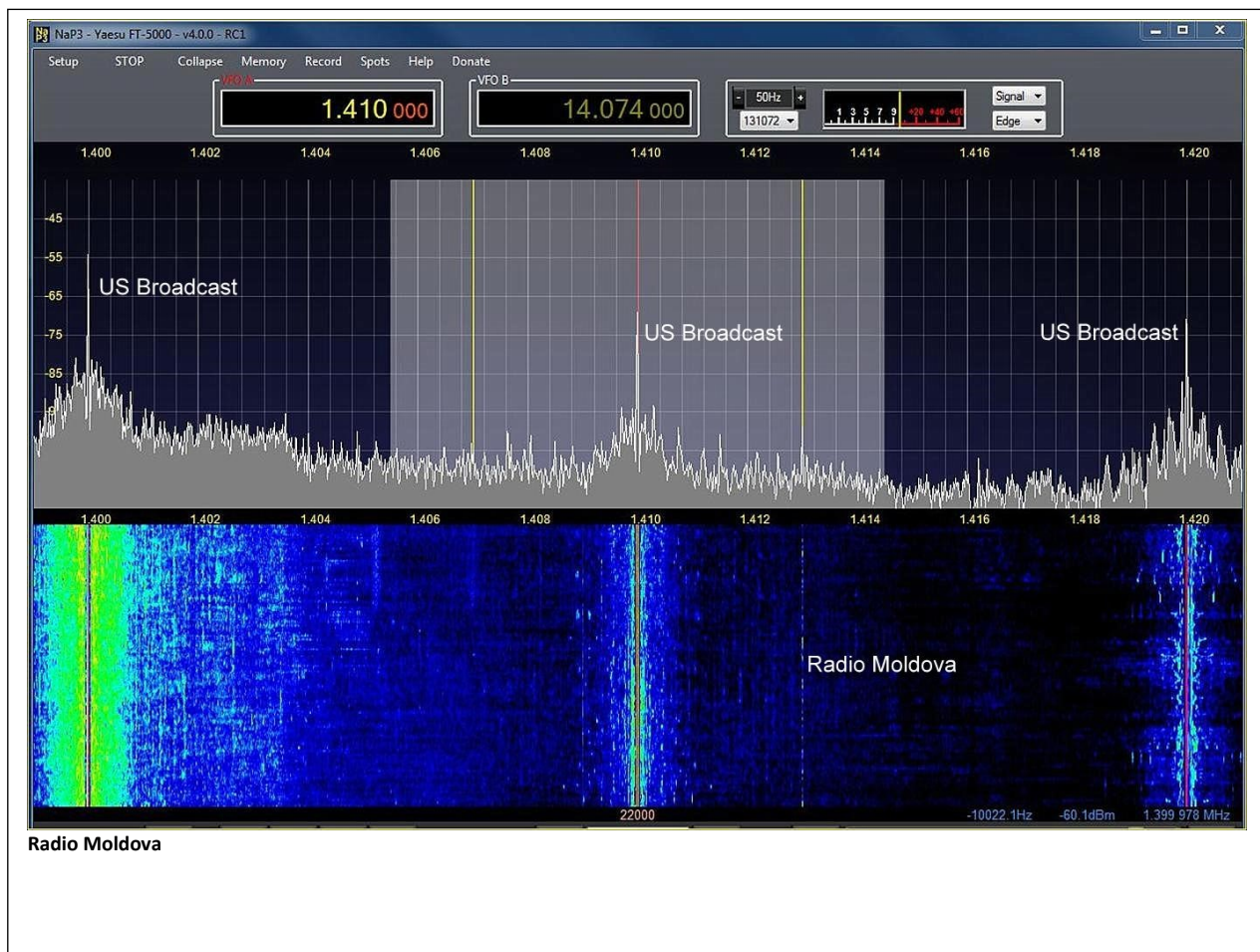
https://en.wikipedia.org/wiki/List_of_European_medium_wave_transmitters

As a side benefit - looking at the broadcast band as an indicator of propagation got me restarted on broadcast band (BCB) DXing. It's easy and fun to hear US stations on every 10 KHz allocation at night, particularly with a simple directional antenna like a K9AY loop. But, there are stations on the AM BCB around the world. Many can be seen with a decent spectrum scope – and the no-knobs radios typically have excellent spectrum scopes.

When was the last time you went BCB DXing or used the broadcast band to check propagation?

What are you seeing on your spectrum scope? How many of the European BCB stations on 9 KHz spacing can you see tonight?

73,
Hal N4GG



River Road Street Fair

"This is the best booth at the fair" was noted by one fairgoer and that seemed to set the tone for a busy (although abbreviated by rain) River Road Street Fair on October 20th. We shook lots of hands, gave out lots of brochures and generally had a great time. A big thanks to KC2K, NP4H, ALØY, W2JC, W2NZ, KD2MOB, KD2BRV, WA2ALY and Robert KD2SOG who joined the team and did a great job with the visitors.



Larry WA2ALY touts Morse Code to an attentive audience



Dave KD2MOB at the first ever Street Fair HF station



The Street Fair Team... plus one of the visitors!!



L to R: Nomar NP4H, Ed WX2R, Aly ALØY



The QSL map stopped many visitors who asked questions and stopped to watch the club demonstrations.

**George Sabbi KC2GLG Talks
SKYWARN AND THE FUTURE OF AMATEUR RADIO
On Friday, November 15th In The FLARC Speaker Series**

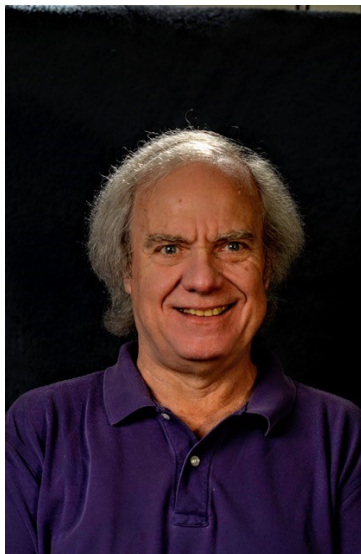
December 7th marks SKYWARN Recognition Day and we are pleased to have Bergen-Passaic SKYWARN Coordinator George Sabbi KC2GLG to discuss the latest with regards to this important topic as part of FLARC's 2019 Speaker Series on Friday, November 15th at the Fair Lawn Senior Center, 11-05 Gardiner Road in Fair Lawn.

The program begins at 7PM and refreshments will be served.

An avid amateur radio operator, George (KC2GLG) has been a licensed (General Class) operator since 2000. His involvement in the hobby was sparked by the close relationship with amateur radio and the National Weather Service, SKYWARN Program.

He has been an NWS SKYWARN Spotter since 1999 and serves currently as the SKYWARN Coordinator for both Bergen and Passaic Counties in New Jersey.

He is a member of the ARRL (American Radio Relay League) and is the current ARRL NNJ Section District Emergency Coordinator for SKYWARN. He previously was the ARRL NNJ Section Emergency Coordinator and an Assistant Director for the ARRL Hudson Division as well as serving as an ARRL Volunteer Examiner.



George Sabbi KC2GLG

Currently retired, George was formerly an entertainment industry professional, concentrating in the Film, Television and Theatre Lighting Industry. He was the founder and Chairperson of the Entertainment Services and Technology Associations Technical Standards Committee, which develops and implements ANSI Standards for Entertainment Industry Equipment as well as Training Certification Programs for Industry Professionals in the Film, Video and Theatrical industries. He was the 1997 recipient of the Entertainment Services and Technology Association's Eva Swan Award for dedicated service to the Entertainment Industry.

Amateur radio and public service are never more important. Our association with those tracking and reporting local weather conditions make us invaluable using our expertise. Come learn more about how the effort is evolving and how you can get involved -- as many in FLARC already are!!

**ARRL Hudson Division Director
Ria Jairam N2RJ Discusses The Latest From Headquarters
As FLARC Closes Out Its 2019 Speaker Series
On Friday, December 13th**

FLARC is proud to have one of its own to end the fourth consecutive year of monthly programs on December 13th with Ria Jairam N2RJ, the ARRL Hudson Division Director on hand to discuss the latest going's on in Newington — at the Fair Lawn Senior Center, 11-05 Gardiner Road in Fair Lawn.

The program begins at 7PM and refreshments will be served.

A FLARC member, Ria has been licensed since 1997 in her native Trinidad and Tobago and in the US since 2001. First becoming interested in radio at age five from her dad who was an avid SWL, she started in Amateur Radio in secondary school under the mentorship of a teacher, Mr. Tony Lee-Mack, 9Y4AL (SK).

Ria is especially interested in Radiosport (contesting) and DXing, as well as homebrewing, kit building, DMR, DSTAR and digital weak signal modes. She has earned several DXCC awards including DXCC on all three modes and nine bands including 160 meters along with DXCC challenge. She has also won several contest plaques including regional, national and North American titles in various DX contests. A keen SDR enthusiast, she has won a “Top Elmer” award in 2016 for her work with VPN remote access for Flex radios. She has also won two FlexRadio “Top Tester” awards for her work in testing and debugging SmartSDR 2.0 and the Power Genius XL solid state amplifier.

Ria is a QSL card sorter with the W2 QSL bureau, run by the North Jersey DX Association (NJDXA) and is the Northern NJ section manager for the Frankford Radio Club (FRC). She is also the District 2 chair of the Young Ladies Radio League (YLRL) and a member of the British Young Ladies Amateur Radio Association (BYLARA).

Ria is an alumnus of the NYU Tandon School of Engineering, where she studied Electrical Engineering. Look for her in the DX pileups, often operating remotely, or operating WSJT digital modes to snag a new one. She blogs about these activities at her website: n2rj.com



Ria Jairam N2RJ

Proposed Bylaw Changes To The By-Laws Of The Fair Lawn Amateur Radio Club

The FLARC Council has reviewed a set of proposed amendments to the FLARC By-laws. They are presented here in full. Members need to read and discuss them. We will vote on these amendments during our December business meeting and if accepted they will take effect immediately.

The proposed amendments are:

It is proposed to amend the FLARC Bylaws Section 7.2 Annual Dues

**Paragraph 5 Associate Members: Eligibility
from:**

5. Associate Membership: Eligibility

Applicants for Associate Membership shall be open exclusively to Fair Lawn residents with an interest in the purpose of the organization, bearing proof of residency. Associate Members shall not be entitled to voting rights or any other rights of full membership. No annual dues shall be imposed.

To:

5. Associate Membership: Eligibility

*Applicants for Associate Membership shall be open exclusively to Fair Lawn residents with an interest in the purpose of the organization, bearing proof of residency. Associate Members shall not be entitled to voting rights or any other rights of full membership. No annual dues shall be imposed. **Associate members may not hold any elected or appointed leadership positions. Associate members may not borrow club equipment or supplies. Associate members may operate club equipment only under the direct supervision of a full member in good standing.***

=====

It is proposed to amend the FLARC Bylaws Section 2.4 Nomination of Committees

from:

Section 2.4 Nomination of Committees

In the month of October of each calendar year, the Council shall appoint a nominating committee consisting of two (2) Trustees of the Association. The nominating committee will present its recommendation for the slate of Officers at the November business meeting. After the nominating committee has presented its recommendation, floor nominations will be accepted. Only voting members in good standing will be accepted for nomination.

To:

Section 2.4 Nominating Committee

*In the month of **September** of each calendar year, the Council shall appoint a nominating committee consisting of the two (2) Trustees of the Association whose term is not expiring at the end of the current year. The nominating committee will present its recommendation for the slate of Officers at the **October** business meeting. After the nominating committee has presented its recommendation, floor nominations will be accepted **at this meeting and floor nominations will be accepted at the November business meeting.** Only voting members in good standing will be accepted for nomination.*

=====

It is proposed to amend the FLARC Bylaws Section 2.5 Management of Association Property

from:

Section 2.5 Management of Association Property

Property of the Association may be acquired, used or disposed of in accordance with the direction of the Council. The Council shall not incur any debt or liability or any combination of debts or liabilities, exceeding 25% of the net assets of the Association without a majority voice vote of members present at any business meeting. No debt or liability, or any combination of debts or liabilities shall be incurred or maintained by the Association that exceeds its assets at any time.

Proposed Bylaw Changes For The Fair Lawn Amateur Radio Club

To:

Section 2.5 Management of Association Property

Property of the Association may be acquired, used or disposed of in accordance with the direction of the Council. The Council shall not incur any debt or liability or any combination of debts or liabilities, exceeding 25% of the net assets of the Association without a majority voice vote of members present at any business meeting. No debt or liability, or any combination of debts or liabilities shall be incurred or maintained by the Association that exceeds its assets at any time.

Section 2.5.1 Quartermaster

The Council may appoint a club Quartermaster who will oversee asset management.

The duties of the Quartermaster are:

- Be responsible for club property and keep accurate records of being checked out/in of the club
- Shall report missing, damaged, unreturned equipment to the board
- Keep maintenance records and schedules on serviceable equipment in club room
- Keep maintenance records and schedules for equipment on club's exterior to include antennas, rotators, cables, towers.

The term for the Quartermaster shall be two (2) years.

=====

It is proposed to amend the FLARC Bylaws Section 4.5 Duties of Treasurer from:

Section 4.5 Duties of Treasurer

The Treasurer shall keep the books and accounts of the Association and shall perform any other duties usually assigned to a Treasurer. The Treasurer shall give Bond, if required by the Council. The Treasurer shall make payments only for bills properly approved by the Council. The Treasurer shall co-sign with the President or Vice President all checks drawn on the accounts of the Association. The Treasurer may delegate a limited portion of Treasurer duties for a limited time, to another member of the Association in the absence or incapacity of the Treasurer. The limited delegation of duties of Treasurer shall be approved by the Council. The Treasurer shall maintain a database of members in good standing containing the names and addresses of each member of the Association, along with the date and manner of termination of such membership and shall perform all other duties usually appertaining to the Office of Treasurer.

To:

Section 4.5 Duties of Treasurer

The Treasurer shall keep the books and accounts of the Association and shall perform any other duties usually assigned to a Treasurer. The Treasurer shall give Bond, if required by the Council. The Treasurer shall make payments only for bills properly approved by the Council. The Treasurer shall co-sign with the President or Vice President all checks drawn on the accounts of the Association. ***The Treasurer shall furnish to each of the three Trustees, quarterly at the end of February, May, August and November, a "line item" summary of all transactions during those previous three months. This summary shall be provided prior to the business meeting of the following month (March, June, September and December).*** The Treasurer may delegate a limited portion of Treasurer duties for a limited time, to another member of the Association in the absence or incapacity of the Treasurer. The limited delegation of duties of Treasurer shall be approved by the Council. The Treasurer shall maintain a database of members in good standing containing the names and addresses of each member of the Association, along with the date and manner of termination of such membership and shall perform all other duties usually appertaining to the Office of Treasurer.

=====

FLARC Visits iHeartRadio Studios

A dozen or so FLARC members went to Franklin, NJ on October 26th to visit the iHeartRadio studios of WSUS and its sister stations. “Real” radio is a bit different from the amateur variety and the club got the cook's tour from the station's engineer Tony DiNicola WA2IHZ on station operations. The group got to sit in with the on-air weekend talent, get an in-depth look at the studios and a detailed explanation on the business model. The bad news was that the tour had so many questions that we never got to see the transmitters. The good news is that we will -- in a Spring follow up on a date TBD. A big thanks to Tony for coming in on his day off.... and to KO2OK, N2AAM, WX2R, KD2BRV, W2UDT, W2NZ, KD2JIP, W2JC, WA2BAU, KD2STA, AND KD2AHK for being FLARC tourists.



The FLARC Tour Group



Tony WA2IHZ was our host and tour guide



Part of the studio tour

Tnx Gary WA2BAU for the pix!

Larry Makowski W2LJ Talks QRP To FLARC On October 18th

A crowd just short of 40 was treated to a lively and informative overview of QRP operating "in the field" as part of our long-running monthly Speaker Series. Larry has gone rogue by being a QRP-only operator and his discussion of equipment, operating and general hints and kinks made for a great show with lots of questions and discussion. Larry publishes a QRP blog that is widely followed and the audience came away with lots of useful information on a really fun and challenging part of the hobby.

Tnx George W3EH for the pix!



Larry makes a point early in the presentation



A crowd of about 40 attended the lecture



Getting AV ready to go beforehand



Lots of video in place which has made a wonderful addition to the program.



Lots of questions and discussion from the crowd



Ed WX2R and Brad KM2C present Larry with a plaque of thanks.

At The Microphones of WSUS – The iHeartRadio Visit



Dave N2AAM



Skip KD2BRV

Going To Hamcation?

Need to get some sun come February? Then let's go to Hamcation!

The annual event is held in Orlando and the dates for this year are February 7-9th.

Tony N2SIQ is looking to put together a bunch of members who want to head down together. Touch base with him and he'll be the wagon master.

You know there will be snow at FLARC, yes!??



Dues Are Due

It's that time of the year again as dues for 2020 are now being received by our Treasurer, Al WA2OWL.

It's always good to get your dues in early and save us the task of chasing you down after New Year's. And they remain at the same level as they have for many years, while the club has grown in size and activities.

This year we renewed over 85% of our 2018 members; quite a feat with a base membership number of around 145.

The FLARC member count is now around 160.

Thanks to you, this is the best club around and you vote your satisfaction with the club by getting your dues in and done for. Al can explain other dues levels beyond basic renewal.

Dues are the lifeblood of the club. An ad earlier in the newsletter points out what's been done this year to earn your renewal.

So renew now while you're thinking about it and give FLARC a great start into 2020!!



Meeting Notes Here

FLARC Business Meeting Minutes 1 November 2019

President Brad KM2C called the meeting to order at 7:33 p.m.

The members rose and recited the Pledge of Allegiance.

Secretary Randy WU2S called the roll of officers and trustees and all were present. The meeting had a quorum to conduct club business.

President Brad KM2C asked if there were any visitors or new members present. Two people rose and introduced themselves – Jim W2KNG and Gary WA2BAU.

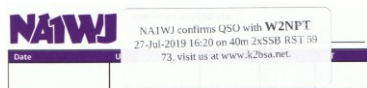
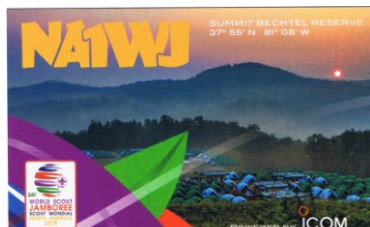
Secretary Randy WU2S announced that the minutes from the October meeting were sent to all members of record and published in the club's newsletter, The Resonator, which is on the club's website at <http://newsletters.FairLawnARC.org>.

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QSL Card Corner

The year 2019 marked the first time that the World Scout Jamboree was held in North America. At the Scout jamboree, they had a Special Event ham radio station with the call sign N A 1 W J -- North American 1st World Jamboree !

Our club station, W2NPT, made contact with the Jamboree station and later received the QSL card shown below --



More than 40,000 Scouts and adult leaders from 150+ countries attended the 2019 World Scout Jamboree hosted by the North American Team of Scouts Canada, Asociación de Scouts de México, and the Boy Scouts of America. The NA1WJ amateur radio operation provided amateur radio demonstrations, ARDF foraging activities, launched balloons with amateur radio payloads, along with satellite contacts including the International Space Station. Thank you for your QSO that helped us introduce amateur radio to thousands of Scouts.

Summit Bechtel Scout Reserve	Fayette County, West Virginia, USA	EM97
K2BSA Amateur Radio Association	2605 Valleywood Drive	jim.wilson@k2bsa.net
www.k2bsa.net	Grapevine, TX 76051 USA	www.NA1WJ.net
facebook.com/NA1WJ_Scouting	twitter.com/NA1WJ_Scouting	

Meeting Notes Here, cont'd

He asked the members present if there were any corrections or amendments needed. There were none so John W2JLH moved to accept the minutes as published and Dave N2AAM seconded the motion. The motion passed by acclamation.

Treasurer Al WA2OWL read this month's Treasurer's Report. President Brad described the purchase of a set of high-quality climbing safety gear. Judith KC2LTM moved to accept the report as presented and Gene WO2W seconded the motion. The motion passed by acclamation.

Secretary Randy WU2S reported for the Tech Committee that the W2NPT repeater antenna was successfully replaced. President Brad thanked all the members who helped with the antenna replacement. He said that the bottom two feet of the lightning damaged antenna is on display in the club room near operating position #2. Brad noted that the other antennas were inspected and re-swept them to confirm that the SWR on each was in the expected range. All antennas passed this inspection.

Ed WX2R reported for the Publicity Committee. He thanked the members who participated in the annual Fair Lawn River Road Street Fair. He said that we met a lot of nice people and received several compliments. Ed reported that the field trip to iHeart Radio, which was organized by Dave N2AAM, was a huge success. The members present applauded Dave in appreciation for his role in arranging the tour. Ed announced that we have an invitation to visit the iHeart Radio transmitter site in the Spring.

Ed announced that he plans to distribute the annual membership survey early in December. Also, he might pilot a Tuesday night club opening in November. Check the FLARC Calendar and Groups.io announcements for the date. During the December VE exam session on Saturday December 7 the club will be open until 1:00 pm.

Ed WX2R noted that the monthly guest speaker list is posted on the club's calendar

(<http://calendar.FairLawnARC.org>)

and listed in each month's Resonator, the club newsletter.

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Meeting Notes Here, cont'd

The scheduled speakers are:

November 15 – George Sabbi KC2GLG will tell us about SKYWARN, the amateur radio weather observation and reporting service.

December 20 – Ria Jairam N2RJ, ARRL Hudson Division Director.

January 17, 2020 – Florencia Pierri KD2PHZ, who is the Sarnoff Collection Curator at The College of New Jersey (TCNJ) will speak to us about the early days of radio.

February 21, 2020 – Ed WX2R will present the results of the annual FLARC membership survey.

Ed reported that we have a new FLARC flyer which highlights the many club activities. We will distribute this flyer at our annual auction and other events to encourage people to join us. Secretary Randy WU2S circulated a copy of the flyer for the members present to view. Ed said that more copies are available in the club rooms. Ed thanked President Brad's wife for producing this excellent advertisement.

Ed WX2R reported that he is making progress in seeking a potential "exchange" club outside of our area with which FLARC can partner for group activities. He had a conversation with Martin Butler M1MRB, President of the Sutton and Cheam Radio Society near London, U.K. Ed plans to visit the U.K. in December and will discuss the possibilities with Martin if authorized by the FLARC Council. After some discussion and a motion from the floor by John W2JLH and Skip KD2BRV, the Council and members present agree that Ed should represent the club in negotiating a relationship with the U.K. club.

Thom W2NZ reported that the FLARC YouTube channel gained 17 new subscribers in the past month. He was able to post the latest video covering the October presentation by Larry Makoski W2LJ "You, QRP and the Great Outdoors" in record time thanks to the cooperation of FLARC members.

Continued in next column.

Meeting Notes Here, cont'd

The annual FLARC Nominating Committee consisting of Trustees Skip KD2BRV and Don N2PRT reported the slate of candidates for the next year to be voted upon at our annual business meeting and holiday dinner on December 6 at the Senior Center. The candidates are:

Nomar	NP4H	– President
John	W2JLH	– Vice President
Al	WA2OWL	– Treasurer
Randy	WU2S	– Secretary
Judith	KC2LTM	– Trustee

Secretary Randy WU2S asked the members if there were any nominations from the floor for any of the positions. Jim W2JC nominated Ed WX2R for Trustee and Ed accepted. This nomination was seconded by Karl W2KBF. Randy again asked the members present if there were any more nominations. There were none, so Secretary Randy WU2S declared the nominations are closed. The voting on December will include:

Judith	KC2LTM	– Trustee
Ed	WX2R	– Trustee

Jim W2JC reported on the FLARC website. He said that in October we saw 785 unique visitors. Many of those appeared to have originated from Ukraine and Russia. Jim notes that we have no personal information at risk of compromise on our website. Jim said that of our 160 members 72 have signed up to use Groups.io. (FairLawnARC.groups.io). Jim asks all members to indicate their callsign in their display name when signing up.

Jim W2JC in his role as QSL manager reported that we are still at 90 confirmed contacts on Logbook of the World (LotW) in our quest for the DX Century Club award. We have over 9000 contacts logged of which 2800 have been confirmed.

Jim W2JC noted that there is a DXpedition chart for November on the FLARC blog

(blog.FairLawnARC.org).

Jim will update the chart monthly. It also highlights the major radio contests for this month.

President Brad KM2C said that Fred W2AAB and George W3EH are still holding the CW classes on Thursday evenings.

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Meeting Notes Here, cont'd

Brian KD2KLN reported that the Monday night net continues to have a lot of participation. He reminded members to sign up to act as net control by contacting him via email [techrat@obsolyte.com] or by using the white board in the FLARC workshop.

President Brad KM2C announced that FLARC has a new high-quality video projector and a spare parts-only unit for our use at our monthly presentations thanks to the efforts of Brian KD2KLN. The projector has been tested at the Senior Center and it projects a good image even with the overhead lights turned on. Brian was able to get the projectors from his employer who decided that they were no longer needed. The members present applauded Brian for obtaining these devices.

Gene WO2W reported on preparations for our annual auction on Friday, November 29, the day after Thanksgiving. Gene said that he has volunteers for food vending and for vendor and buyer sign-in. President Brad KM2C reminded members that this auction is our only normal source of funds, so it is important that the event is successful. Ed WX2R said that a press release describing the auction has been sent to the NNJ Section and Hudson Division. A notice is on the ARRL website and in QST.

Gene WO2W announced that preparations for our annual Holiday Dinner on Friday, December 6 at the Senior Center are not going as well. He said that so far, we only have volunteers to prepare dinner rolls and butter. Jim W2JC will send additional messages to members asking for volunteers for this event. Jim reminded members that email delivery is not guaranteed and that it helps to put **webmaster@FairLawnARC.org** in your email address book so incoming message from FLARC do not get tagged as spam.

President Brad KM2C noted that Winter Field Day is on January 25-26, 2020. He said we should start planning our participation in this event. He asked members for suggestions for a cold weather tent that we would consider purchasing.

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Meeting Notes Here, cont'd

Hamcation will be held in Orlando Florida on February 7-9, 2020. Several FLARC members indicated that they will be at this event.

Vice-President Van W2DLT reported that he was a member of a contest team who ran the station V26B in Antigua for the CQ Worldwide DX SSB contest. Van said that he and the other 5 operators worked the full contest in 12-hour shifts. The team made 10,487 contacts with hams in 150 countries.

They achieved over 18,000,000 points which netted them the #1 slot in North America and #3 in the World. Van asked the members present if anyone worked V26B and 3 members indicated that they had. The members present applauded Van and his friends for their very successful contest effort.

Jim W2JC reported that he posted a step-by-step startup guide for digital operations at operating position #2. He is working on a similar guide for using the Flex radios at operating positions #1 and #4. Anyone who uses the guide for position #2 is asked to make any suggestions for changes or additions to Jim W2JC.

Karl W2KBF noted that the BARA fox hunt two weeks ago resulted in no one finding the fox. President Brad KM2C said that we should schedule more hunts so there are opportunities to practice.

John W2JLH suggested that we consider other locations for FLARC special event operations. Several members identified possible locations. Jim W2JC reminded members that special event callsigns like the W2E callsign we used, rotate to different groups almost every week. We may want to use W2NPT for future special events.

Having no further business, President Brad KM2C asked for a motion to adjourn. Gene WO2W so moved and Judith KC2LTM seconded the motion. The members present voted in favor and the meeting was adjourned at 8:27 p.m.

Respectfully submitted,

Randy WU2S, Secretary

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